$$Ans1=\begin{bmatrix} .1=\left(\mathrm{Cos}(15^{o})=\frac{\sqrt{2}}{4}+\frac{\sqrt{2}\sqrt{3}}{4}\right) & .2=\left(\mathrm{Sin}\left(\frac{7\pi}{12}\right)=\frac{\sqrt{2}}{4}+\frac{\sqrt{2}\sqrt{3}}{4}\right)\\ .3=(\mathrm{Tan}(75^{o})=2+\sqrt{3}) & .4=\left(\mathrm{Sin}\left(\frac{23\pi}{12}\right)=\frac{\sqrt{2}}{4}-\frac{\sqrt{2}\sqrt{3}}{4}\right)\\ .5=(\mathrm{Csc}((-15)^{o})=-\sqrt{2}\sqrt{3}-\sqrt{2}) & .6=(\mathrm{Tan}((-195)^{o})=-2+\sqrt{3})\\ .7=\left(\mathrm{Cot}\left(-\frac{17\pi}{12}\right)=-2+\sqrt{3}\right) & .8=\left(\mathrm{Cos}\left(-\frac{7\pi}{12}\right)=\frac{\sqrt{2}}{4}-\frac{\sqrt{2}\sqrt{3}}{4}\right)\end{bmatrix},\ ,\begin{bmatrix}:)\\:(\\M\\a\\t\\h\\@\\M\\U\\T\\:)\\:(\end{bmatrix}$$

$$Ans2=\begin{bmatrix} .1=\left(2\,\mathrm{Sin}(15^{o})\,\mathrm{Cos}(15^{o})=\left(\mathrm{Sin}(30^{o})=\frac{1}{2}\right)\right) & .2=\left(\mathrm{Cos}(22.5^{o})^{2}-\mathrm{Sin}(22.5^{o})^{2}=\left(\mathrm{Cos}(45^{o})=\frac{\sqrt{2}}{2}\right)\right)\\ .3=\left(2\,\mathrm{Cos}\left(\frac{\pi}{12}\right)^{2}-1=\left(\mathrm{Cos}\left(\frac{\pi}{6}\right)=\frac{\sqrt{3}}{2}\right)\right) & .4=\left(\mathrm{Sin}\left(\frac{\pi}{9}\right)\mathrm{Cos}\left(\frac{5\pi}{36}\right)+\mathrm{Cos}\left(\frac{\pi}{9}\right)\mathrm{Sin}\left(\frac{5\pi}{36}\right)=\left(\mathrm{Sin}\left(\frac{\pi}{4}\right)=\frac{\sqrt{2}}{2}\right)\right)\\ .5=\left(\frac{\mathrm{Tan}(25^{o})+\mathrm{Tan}(5^{o})}{1-\mathrm{Tan}(25^{o})\,\mathrm{Tan}(5^{o})}=\left(\mathrm{Tan}(30^{o})=\frac{\sqrt{3}}{3}\right)\right) & .6=\left(\frac{\mathrm{Tan}\left(\frac{7\pi}{30}\right)-\mathrm{Tan}\left(\frac{\pi}{15}\right)}{1+\mathrm{Tan}\left(\frac{7\pi}{30}\right)\mathrm{Tan}\left(\frac{\pi}{15}\right)}=\left(\mathrm{Tan}\left(\frac{\pi}{6}\right)=\frac{\sqrt{3}}{3}\right)\right)\\ .7=\left(\frac{2\,\mathrm{Tan}(22.5^{o})}{1-\mathrm{Tan}(22.5^{o})^{2}}=(\mathrm{Tan}(45^{o})=1)\right) & .8=\left(\mathrm{Cos}(70^{o})\,\mathrm{Cos}(10^{o})+\mathrm{Sin}(70^{o})\,\mathrm{Sin}(10^{o})=\left(\mathrm{Cos}(60^{o})=\frac{1}{2}\right)\right)\\ .9=(\mathrm{Cos}(78^{o})\,\mathrm{Cos}(12^{o})-\mathrm{Sin}(78^{o})\,\mathrm{Sin}(12^{o})=(\mathrm{Cos}(90^{o})=0)) & .10=\left(1-2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)^{2}=\left(\mathrm{Cos}\left(\frac{\pi}{4}\right)=\frac{\sqrt{2}}{2}\right)\right)\end{bmatrix},\ ,\begin{bmatrix}:)\\:(\\:)\\:(\\\begin{bmatrix}\begin{bmatrix}M\\a\\t\\h\\@\\M\\U\\T\end{bmatrix}\end{bmatrix}\\:)\\:(\\:)\\:(\\:)\\:(\end{bmatrix}$$

$$Ans3=\begin{bmatrix} .1=\left(\mathrm{Cos}(\alpha)=\frac{\sqrt{39}}{8}\right) & .2=\left(\mathrm{Sin}(\beta)=-\frac{2\sqrt{2}}{3}\right)\\ .3=\left(\mathrm{Tan}(\alpha)=\frac{5\sqrt{39}}{39}\right) & .4=\left(\mathrm{Sin}(\beta-\alpha)=-\frac{\sqrt{39}\sqrt{2}}{12}+\frac{5}{24}\right)\\ .5=\left(\mathrm{Cos}(\alpha+\beta)=-\frac{\sqrt{39}}{24}+\frac{5\sqrt{2}}{12}\right) & .6=\left(\mathrm{Tan}(\alpha-\beta)=-\frac{45\sqrt{39}}{161}+\frac{128\sqrt{2}}{161}\right)\\ .7=\left(\mathrm{Cos}(2\beta)=\frac{-7}{9}\right) & .8=\left(\mathrm{Tan}(2\alpha)=\frac{5\sqrt{39}}{7}\right)\end{bmatrix},\ Ans4=\begin{bmatrix} .1=\left(\mathrm{Cos}(\alpha)=\frac{\sqrt{65}}{9}\right) & .2=\left(\mathrm{Sin}(\beta)=\frac{2\sqrt{10}}{7}\right)\\ .3=\left(\mathrm{Tan}(\beta)=-\frac{2\sqrt{10}}{3}\right) & .4=\left(\mathrm{Sin}(\alpha+\beta)=\frac{4}{21}+\frac{2\sqrt{65}\sqrt{10}}{63}\right)\\ .5=\left(\mathrm{Cos}(\beta-\alpha)=-\frac{\sqrt{65}}{21}-\frac{8\sqrt{10}}{63}\right) & .6=\left(\mathrm{Tan}(\alpha-\beta)=\frac{196\sqrt{5}\sqrt{13}}{55}-\frac{486\sqrt{5}\sqrt{2}}{55}\right)\\ .7=\left(\mathrm{Sin}(2\alpha)=-\frac{8\sqrt{65}}{81}\right) & .8=\left(\mathrm{Tan}(2\beta)=\frac{12\sqrt{10}}{31}\right)\end{bmatrix},\ ,\begin{bmatrix}:)\\:(\\M\\a\\t\\h\\@\\M\\U\\T\\:)\\:(\end{bmatrix}$$

$$Ans5=(\mathrm{Sin}(17^{o})=(\mathrm{Sqrt}(0.0855)=0.292)),\ ,\begin{bmatrix}M\\U\\T\end{bmatrix}$$

$$Ans6=(\mathrm{Cos}(39^{o})=(\mathrm{Sqrt}(0.6040)=0.777)),\ ,\begin{bmatrix}M\\U\\T\end{bmatrix}$$

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$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}\left(\frac{\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Sin}(75^{o}) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = \left(\mathrm{Tan}\left(\frac{7\pi}{12}\right) = -2 - \sqrt{3}\right) & .4 = \left(\mathrm{Csc}\left(\frac{17\pi}{12}\right) = -\sqrt{2}\sqrt{3} + \sqrt{2}\right) \\ .5 = \left(\mathrm{Sin}((-195)^{o}) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) & .6 = (\mathrm{Sec}((-105)^{o}) = -\sqrt{2}\sqrt{3} - \sqrt{2}) \\ .7 = \left(\mathrm{Tan}\left(-\frac{17\pi}{12}\right) = -2 - \sqrt{3}\right) & .8 = \left(\mathrm{Cot}\left(\frac{23\pi}{12}\right) = -2 - \sqrt{3}\right) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(1 - 2\,\mathrm{Sin}(22.5^{o})^2 = \left(\mathrm{Cos}(45^{o}) = \frac{\sqrt{2}}{2}\right)\right) & .2 = \left(2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)\mathrm{Cos}\left(\frac{\pi}{8}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .3 = \left(\frac{\mathrm{Tan}(15^{o}) + \mathrm{Tan}(30^{o})}{1 - \mathrm{Tan}(15^{o})\,\mathrm{Tan}(30^{o})} = (\mathrm{Tan}(45^{o}) = 1)\right) & .4 = \left(2\,\mathrm{Cos}\left(\frac{\pi}{12}\right)^2 - 1 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \\ .5 = (\mathrm{Sin}(12^{o})\,\mathrm{Cos}(78^{o}) + \mathrm{Cos}(12^{o})\,\mathrm{Sin}(78^{o}) = (\mathrm{Sin}(90^{o}) = 1)) & .6 = \left(\mathrm{Cos}(40^{o})\,\mathrm{Cos}(10^{o}) + \mathrm{Sin}(40^{o})\,\mathrm{Sin}(10^{o}) = \left(\mathrm{Cos}(30^{o}) = \frac{\sqrt{3}}{2}\right)\right) \\ .7 = \left(\frac{2\,\mathrm{Tan}(15^{o})}{1 - \mathrm{Tan}(15^{o})^2} = \left(\mathrm{Tan}(30^{o}) = \frac{\sqrt{3}}{3}\right)\right) & .8 = \left(\mathrm{Cos}\left(\frac{\pi}{9}\right)\mathrm{Cos}\left(\frac{\pi}{18}\right) - \mathrm{Sin}\left(\frac{\pi}{9}\right)\mathrm{Sin}\left(\frac{\pi}{18}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \\ .9 = \left(\mathrm{Sin}\left(\frac{7\pi}{12}\right)\mathrm{Cos}\left(\frac{\pi}{12}\right) - \mathrm{Cos}\left(\frac{7\pi}{12}\right)\mathrm{Sin}\left(\frac{\pi}{12}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{2}\right) = 1\right)\right) & .10 = \left(\mathrm{Cos}(15^{o})^2 - \mathrm{Sin}(15^{o})^2 = \left(\mathrm{Cos}(30^{o}) = \frac{\sqrt{3}}{2}\right)\right) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \begin{bmatrix}\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\end{bmatrix} \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{\sqrt{33}}{7}\right) & .2 = \left(\mathrm{Cos}(\beta) = -\frac{2\sqrt{10}}{7}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = \frac{\sqrt{33}}{4}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{12}{49} + \frac{2\sqrt{33}\sqrt{10}}{49}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = -\frac{8\sqrt{10}}{49} - \frac{3\sqrt{33}}{49}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = \frac{4\sqrt{33}}{7} + \frac{6\sqrt{10}}{7}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{12\sqrt{10}}{49}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = -\frac{8\sqrt{33}}{17}\right) \end{bmatrix}, \ Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = \frac{3}{5}\right) & .2 = \left(\mathrm{Sin}(\beta) = -\frac{\sqrt{3}}{2}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = \frac{-4}{3}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = -\frac{3\sqrt{3}}{10} - \frac{2}{5}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = -\frac{2\sqrt{3}}{5} - \frac{3}{10}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = \frac{16}{13} + \frac{25\sqrt{3}}{39}\right) \\ .7 = \left(\mathrm{Cos}(2\alpha) = \frac{-7}{25}\right) & .8 = (\mathrm{Tan}(2\beta) = -\sqrt{3}) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Sin}(35^{o}) = (\mathrm{Sqrt}(0.3290) = 0.574)), \ , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Cos}(23^{o}) = (\mathrm{Sqrt}(0.8475) = 0.921)), \ , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Sin}\left(\frac{5\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Cos}(15^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = (\mathrm{Tan}(105^o) = -2 - \sqrt{3}) & .4 = \left(\mathrm{Csc}\left(-\frac{19\pi}{12}\right) = \sqrt{2}\sqrt{3} - \sqrt{2}\right) \\ .5 = \left(\mathrm{Cos}(345^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .6 = (\mathrm{Tan}(195^o) = 2 - \sqrt{3}) \\ .7 = \left(\mathrm{Sin}\left(-\frac{11\pi}{12}\right) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .8 = \left(\mathrm{Sec}\left(-\frac{\pi}{12}\right) = \sqrt{2}\sqrt{3} - \sqrt{2}\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(2\,\mathrm{Cos}(22.5^o)^2 - 1 = \left(\mathrm{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) & .2 = \left(\mathrm{Cos}(15^o)^2 - \mathrm{Sin}(15^o)^2 = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) \\ .3 = \left(\mathrm{Sin}\left(\frac{5\pi}{18}\right)\mathrm{Cos}\left(\frac{\pi}{9}\right) - \mathrm{Cos}\left(\frac{5\pi}{18}\right)\mathrm{Sin}\left(\frac{\pi}{9}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .4 = \left(\frac{\mathrm{Tan}(15^o) + \mathrm{Tan}(30^o)}{1 - \mathrm{Tan}(15^o)\,\mathrm{Tan}(30^o)} = (\mathrm{Tan}(45^o) = 1)\right) \\ .5 = \left(2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)\mathrm{Cos}\left(\frac{\pi}{8}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .6 = \left(\frac{\mathrm{Tan}(55^o) - \mathrm{Tan}(10^o)}{1 + \mathrm{Tan}(55^o)\,\mathrm{Tan}(10^o)} = (\mathrm{Tan}(45^o) = 1)\right) \\ .7 = \left(1 - 2\,\mathrm{Sin}\left(\frac{\pi}{12}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) & .8 = \left(\mathrm{Cos}(40^o)\,\mathrm{Cos}(20^o) - \mathrm{Sin}(40^o)\,\mathrm{Sin}(20^o) = \left(\mathrm{Cos}(60^o) = \frac{1}{2}\right)\right) \\ .9 = \left(\mathrm{Sin}\left(\frac{\pi}{18}\right)\mathrm{Cos}\left(\frac{\pi}{9}\right) + \mathrm{Cos}\left(\frac{\pi}{18}\right)\mathrm{Sin}\left(\frac{\pi}{9}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .10 = \left(\frac{2\,\mathrm{Tan}\left(\frac{\pi}{8}\right)}{1 - \mathrm{Tan}\left(\frac{\pi}{8}\right)^2} = \left(\mathrm{Tan}\left(\frac{\pi}{4}\right) = \mathrm{Tan}\left(\frac{\pi}{4}\right)\right)\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \begin{bmatrix}\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\end{bmatrix} \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = \frac{\sqrt{3}}{2}\right) & .2 = \left(\mathrm{Sin}(\beta) = -\frac{3\sqrt{5}}{7}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = -\frac{3\sqrt{5}}{2}\right) & .4 = \left(\mathrm{Sin}(\alpha + \beta) = \frac{1}{7} - \frac{3\sqrt{3}\sqrt{5}}{14}\right) \\ .5 = \left(\mathrm{Cos}(\alpha - \beta) = \frac{\sqrt{3}}{7} - \frac{3\sqrt{5}}{14}\right) & .6 = \left(\mathrm{Tan}(\beta - \alpha) = \frac{8\sqrt{5}}{11} + \frac{49\sqrt{3}}{33}\right) \\ .7 = \left(\mathrm{Cos}(2\beta) = \frac{-41}{49}\right) & .8 = (\mathrm{Tan}(2\alpha) = \sqrt{3}) \end{bmatrix}, \quad Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{2\sqrt{10}}{7}\right) & .2 = \left(\mathrm{Cos}(\beta) = -\frac{\sqrt{33}}{7}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = \frac{4\sqrt{33}}{33}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{12}{49} + \frac{2\sqrt{33}\sqrt{10}}{49}\right) \\ .5 = \left(\mathrm{Cos}(\alpha - \beta) = \frac{3\sqrt{33}}{49} - \frac{8\sqrt{10}}{49}\right) & .6 = \left(\mathrm{Tan}(\alpha + \beta) = \frac{6\sqrt{10}}{7} - \frac{4\sqrt{33}}{7}\right) \\ .7 = \left(\mathrm{Sin}(2\alpha) = -\frac{12\sqrt{10}}{49}\right) & .8 = \left(\mathrm{Tan}(2\beta) = \frac{8\sqrt{33}}{17}\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Sin}(12^o) = (\mathrm{Sqrt}(0.0430) = 0.208)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Cos}(37^o) = (\mathrm{Sqrt}(0.6380) = 0.799)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}\left(\frac{\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Sin}(105^{o}) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = \left(\mathrm{Tan}\left(\frac{5\pi}{12}\right) = 2 + \sqrt{3}\right) & .4 = \left(\mathrm{Sin}\left(-\frac{19\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .5 = \left(\mathrm{Cos}((-75)^{o}) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) & .6 = \left(\mathrm{Cot}\left(\frac{23\pi}{12}\right) = -2 - \sqrt{3}\right) \\ .7 = (\mathrm{Sec}((-195)^{o}) = -\sqrt{2}\sqrt{3} + \sqrt{2}) & .8 = \left(\mathrm{Csc}\left(\frac{11\pi}{12}\right) = \sqrt{2}\sqrt{3} + \sqrt{2}\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\frac{2\,\mathrm{Tan}(22.5^{o})}{1 - \mathrm{Tan}(22.5^{o})^2} = (\mathrm{Tan}(45^{o}) = 1)\right) & .2 = \left(\frac{\mathrm{Tan}(70^{o}) - \mathrm{Tan}(10^{o})}{1 + \mathrm{Tan}(70^{o})\,\mathrm{Tan}(10^{o})} = (\mathrm{Tan}(60^{o}) = \sqrt{3})\right) \\ .3 = \left(1 - 2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .4 = \left(2\,\mathrm{Cos}(15^{o})^2 - 1 = \left(\mathrm{Cos}(30^{o}) = \frac{\sqrt{3}}{2}\right)\right) \\ .5 = \left(2\,\mathrm{Sin}\left(\frac{\pi}{12}\right)\mathrm{Cos}\left(\frac{\pi}{12}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .6 = \left(\mathrm{Sin}(30^{o})\,\mathrm{Cos}(15^{o}) + \mathrm{Cos}(30^{o})\,\mathrm{Sin}(15^{o}) = \left(\mathrm{Sin}(45^{o}) = \frac{\sqrt{2}}{2}\right)\right) \\ .7 = \left(\frac{\mathrm{Tan}\left(\frac{5\pi}{36}\right) + \mathrm{Tan}\left(\frac{\pi}{36}\right)}{1 - \mathrm{Tan}\left(\frac{5\pi}{36}\right)\mathrm{Tan}\left(\frac{\pi}{36}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3}\right)\right) & .8 = \left(\mathrm{Cos}(22.5^{o})^2 - \mathrm{Sin}(22.5^{o})^2 = \left(\mathrm{Cos}(45^{o}) = \frac{\sqrt{2}}{2}\right)\right) \\ .9 = \left(\mathrm{Cos}\left(\frac{2\pi}{9}\right)\mathrm{Cos}\left(\frac{\pi}{18}\right) + \mathrm{Sin}\left(\frac{2\pi}{9}\right)\mathrm{Sin}\left(\frac{\pi}{18}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) & .10 = \left(\mathrm{Cos}\left(\frac{2\pi}{9}\right)\mathrm{Cos}\left(\frac{\pi}{9}\right) - \mathrm{Sin}\left(\frac{2\pi}{9}\right)\mathrm{Sin}\left(\frac{\pi}{9}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{3}\right) = \frac{1}{2}\right)\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \begin{bmatrix}\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\end{bmatrix} \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = \frac{\sqrt{7}}{4}\right) & .2 = \left(\mathrm{Sin}(\beta) = \frac{2\sqrt{10}}{7}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = \frac{3\sqrt{7}}{7}\right) & .4 = \left(\mathrm{Sin}(\alpha + \beta) = -\frac{9}{28} + \frac{\sqrt{7}\sqrt{10}}{14}\right) \\ .5 = \left(\mathrm{Cos}(\beta - \alpha) = -\frac{3\sqrt{7}}{28} + \frac{3\sqrt{10}}{14}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = -\frac{49\sqrt{7}}{99} - \frac{32\sqrt{10}}{99}\right) \\ .7 = \left(\mathrm{Sin}(2\alpha) = \frac{3\sqrt{7}}{8}\right) & .8 = \left(\mathrm{Tan}(2\beta) = \frac{12\sqrt{10}}{31}\right) \end{bmatrix}, \; Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = \frac{\sqrt{15}}{4}\right) & .2 = \left(\mathrm{Sin}(\beta) = \frac{-4}{5}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = -\frac{\sqrt{15}}{15}\right) & .4 = \left(\mathrm{Sin}(\alpha + \beta) = \frac{3}{20} - \frac{\sqrt{15}}{5}\right) \\ .5 = \left(\mathrm{Cos}(\alpha - \beta) = -\frac{3\sqrt{15}}{20} + \frac{1}{5}\right) & .6 = \left(\mathrm{Tan}(\beta - \alpha) = \frac{192}{119} + \frac{25\sqrt{15}}{119}\right) \\ .7 = \left(\mathrm{Cos}(2\beta) = \frac{-7}{25}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = -\frac{\sqrt{15}}{7}\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Cos}(4^{o}) = (\mathrm{Sqrt}(0.9950) = 0.998)), \; \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Sin}(41^{o}) = (\mathrm{Sqrt}(0.4305) = 0.656)), \; \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Sin}\left(\frac{5\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Cos}(15^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = (\mathrm{Tan}(105^o) = -2 - \sqrt{3}) & .4 = \left(\mathrm{Sin}((-255)^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .5 = \left(\mathrm{Sec}\left(-\frac{19\pi}{12}\right) = \sqrt{2}\sqrt{3} + \sqrt{2}\right) & .6 = (\mathrm{Tan}((-345)^o) = 2 - \sqrt{3}) \\ .7 = \left(\mathrm{Cot}\left(-\frac{13\pi}{12}\right) = -2 - \sqrt{3}\right) & .8 = (\mathrm{Csc}(255^o) = -\sqrt{2}\sqrt{3} + \sqrt{2}) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\frac{\mathrm{Tan}(55^o) - \mathrm{Tan}(10^o)}{1 + \mathrm{Tan}(55^o)\,\mathrm{Tan}(10^o)} = (\mathrm{Tan}(45^o) = 1)\right) & .2 = \left(\mathrm{Cos}\left(\frac{11\pi}{18}\right)\mathrm{Cos}\left(\frac{\pi}{9}\right) + \mathrm{Sin}\left(\frac{11\pi}{18}\right)\mathrm{Sin}\left(\frac{\pi}{9}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{2}\right) = 0\right)\right) \\ .3 = \left(\mathrm{Sin}(72^o)\,\mathrm{Cos}(12^o) - \mathrm{Cos}(72^o)\,\mathrm{Sin}(12^o) = \left(\mathrm{Sin}(60^o) = \frac{\sqrt{3}}{2}\right)\right) & .4 = \left(2\,\mathrm{Cos}\left(\frac{\pi}{12}\right)^2 - 1 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \\ .5 = \left(2\,\mathrm{Sin}(22.5^o)\,\mathrm{Cos}(22.5^o) = \left(\mathrm{Sin}(45^o) = \frac{\sqrt{2}}{2}\right)\right) & .6 = \left(\frac{2\,\mathrm{Tan}(22.5^o)}{1 - \mathrm{Tan}(22.5^o)^2} = (\mathrm{Tan}(45^o) = 1)\right) \\ .7 = \left(\frac{\mathrm{Tan}\left(\frac{\pi}{9}\right) + \mathrm{Tan}\left(\frac{\pi}{18}\right)}{1 - \mathrm{Tan}\left(\frac{\pi}{9}\right)\mathrm{Tan}\left(\frac{\pi}{18}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3}\right)\right) & .8 = \left(\mathrm{Cos}\left(\frac{\pi}{8}\right)^2 - \mathrm{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .9 = \left(1 - 2\,\mathrm{Sin}(15^o)^2 = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) & .10 = \left(\mathrm{Sin}(12^o)\,\mathrm{Cos}(33^o) + \mathrm{Cos}(12^o)\,\mathrm{Sin}(33^o) = \left(\mathrm{Sin}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ [[M, a, t, h, @, M, U, T]] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{3\sqrt{5}}{7}\right) & .2 = \left(\mathrm{Cos}(\beta) = \frac{\sqrt{65}}{9}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = -\frac{4\sqrt{65}}{65}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = -\frac{8}{63} - \frac{\sqrt{5}\sqrt{65}}{21}\right) \\ .5 = \left(\mathrm{Cos}(\alpha - \beta) = \frac{2\sqrt{65}}{63} - \frac{4\sqrt{5}}{21}\right) & .6 = \left(\mathrm{Tan}(\alpha + \beta) = -\frac{243\sqrt{5}}{230} + \frac{49\sqrt{5}\sqrt{13}}{115}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{8\sqrt{65}}{81}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = -\frac{12\sqrt{5}}{41}\right) \end{bmatrix}, \ , \ Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{2\sqrt{14}}{9}\right) & .2 = \left(\mathrm{Cos}(\beta) = -\frac{2\sqrt{6}}{5}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = \frac{\sqrt{6}}{12}\right) & .4 = \left(\mathrm{Sin}(\alpha + \beta) = -\frac{4\sqrt{14}\sqrt{6}}{45} + \frac{1}{9}\right) \\ .5 = \left(\mathrm{Cos}(\alpha - \beta) = \frac{2\sqrt{6}}{9} - \frac{2\sqrt{14}}{45}\right) & .6 = \left(\mathrm{Tan}(\beta - \alpha) = \frac{81\sqrt{2}\sqrt{3}}{272} + \frac{125\sqrt{2}\sqrt{7}}{272}\right) \\ .7 = \left(\mathrm{Cos}(2\alpha) = \frac{-31}{81}\right) & .8 = \left(\mathrm{Tan}(2\beta) = \frac{4\sqrt{6}}{23}\right) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Sin}(18^o) = (\mathrm{Sqrt}(0.0955) = 0.309)), \ , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Cos}(31^o) = (\mathrm{Sqrt}(0.7345) = 0.857)), \ , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

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$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Sin}\left(\frac{7\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Cos}(75^{o}) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .3 = \left(\mathrm{Tan}\left(\frac{\pi}{12}\right) = 2 - \sqrt{3}\right) & .4 = \left(\mathrm{Cos}((\text{-}255)^{o}) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .5 = \left(\mathrm{Sin}\left(-\frac{5\pi}{12}\right) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .6 = \left(\mathrm{Cot}\left(\frac{17\pi}{12}\right) = 2 - \sqrt{3}\right) \\ .7 = (\mathrm{Tan}((\text{-}195)^{o}) = -2 + \sqrt{3}) & .8 = (\mathrm{Csc}((\text{-}345)^{o}) = \sqrt{2}\sqrt{3} + \sqrt{2}) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(48^{o})\,\mathrm{Cos}(12^{o}) + \mathrm{Cos}(48^{o})\,\mathrm{Sin}(12^{o}) = \left(\mathrm{Sin}(60^{o}) = \frac{\sqrt{3}}{2}\right)\right) & .2 = \left(\mathrm{Cos}\left(\frac{\pi}{8}\right)^{2} - \mathrm{Sin}\left(\frac{\pi}{8}\right)^{2} = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .3 = \left(\frac{2\,\mathrm{Tan}\left(\frac{\pi}{8}\right)}{1 - \mathrm{Tan}\left(\frac{\pi}{8}\right)^{2}} = \left(\mathrm{Tan}\left(\frac{\pi}{4}\right) = \mathrm{Tan}\left(\frac{\pi}{4}\right)\right)\right) & .4 = \left(\mathrm{Cos}\left(\frac{17\pi}{36}\right)\mathrm{Cos}\left(\frac{5\pi}{36}\right) + \mathrm{Sin}\left(\frac{17\pi}{36}\right)\mathrm{Sin}\left(\frac{5\pi}{36}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{3}\right) = \frac{1}{2}\right)\right) \\ .5 = \left(1 - 2\,\mathrm{Sin}(15^{o})^{2} = \left(\mathrm{Cos}(30^{o}) = \frac{\sqrt{3}}{2}\right)\right) & .6 = \left(2\,\mathrm{Sin}\left(\frac{\pi}{12}\right)\mathrm{Cos}\left(\frac{\pi}{12}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) \\ .7 = \left(2\,\mathrm{Cos}(22.5^{o})^{2} - 1 = \left(\mathrm{Cos}(45^{o}) = \frac{\sqrt{2}}{2}\right)\right) & .8 = \left(\mathrm{Cos}\left(\frac{\pi}{9}\right)\mathrm{Cos}\left(\frac{\pi}{18}\right) - \mathrm{Sin}\left(\frac{\pi}{9}\right)\mathrm{Sin}\left(\frac{\pi}{18}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \\ .9 = \left(\mathrm{Sin}(42^{o})\,\mathrm{Cos}(12^{o}) - \mathrm{Cos}(42^{o})\,\mathrm{Sin}(12^{o}) = \left(\mathrm{Sin}(30^{o}) = \frac{1}{2}\right)\right) & .10 = \left(\frac{\mathrm{Tan}\left(\frac{5\pi}{36}\right) + \mathrm{Tan}\left(\frac{\pi}{9}\right)}{1 - \mathrm{Tan}\left(\frac{5\pi}{36}\right)\mathrm{Tan}\left(\frac{\pi}{9}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{4}\right) = 1\right)\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \left[\left[\begin{matrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{matrix}\right]\right] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = \frac{\sqrt{35}}{6}\right) & .2 = \left(\mathrm{Sin}(\beta) = \frac{2\sqrt{10}}{7}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = \frac{\sqrt{35}}{35}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{\sqrt{35}\sqrt{10}}{21} + \frac{1}{14}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = -\frac{\sqrt{35}}{14} - \frac{\sqrt{10}}{21}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = \frac{49\sqrt{5}\sqrt{7}}{275} + \frac{216\sqrt{5}\sqrt{2}}{275}\right) \\ .7 = \left(\mathrm{Sin}(2\alpha) = \frac{\sqrt{35}}{18}\right) & .8 = \left(\mathrm{Tan}(2\beta) = \frac{12\sqrt{10}}{31}\right) \end{bmatrix}, \quad Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = -\frac{\sqrt{21}}{5}\right) & .2 = \left(\mathrm{Cos}(\beta) = \frac{\sqrt{3}}{2}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = -\frac{\sqrt{3}}{3}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{1}{5} + \frac{\sqrt{21}\sqrt{3}}{10}\right) \\ .5 = \left(\mathrm{Cos}(\alpha - \beta) = -\frac{\sqrt{3}}{5} + \frac{\sqrt{21}}{10}\right) & .6 = \left(\mathrm{Tan}(\alpha + \beta) = -\frac{8\sqrt{7}\sqrt{3}}{9} + \frac{25\sqrt{3}}{9}\right) \\ .7 = \left(\mathrm{Cos}(2\alpha) = \frac{\text{-}17}{25}\right) & .8 = (\mathrm{Tan}(2\beta) = -\sqrt{3}) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Cos}(37^{o}) = (\mathrm{Sqrt}(0.6380) = 0.799)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Sin}(6^{o}) = (\mathrm{Sqrt}(0.0110) = 0.105)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}\left(\frac{7\pi}{12}\right) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Sin}(15^o) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .3 = (\mathrm{Tan}(75^o) = 2 + \sqrt{3}) & .4 = \left(\mathrm{Sin}((-75)^o) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .5 = \left(\mathrm{Cot}\left(\frac{23\pi}{12}\right) = -2 - \sqrt{3}\right) & .6 = (\mathrm{Sec}((-345)^o) = \sqrt{2}\sqrt{3} - \sqrt{2}) \\ .7 = \left(\mathrm{Csc}\left(-\frac{13\pi}{12}\right) = \sqrt{2}\sqrt{3} + \sqrt{2}\right) & .8 = \left(\mathrm{Cos}\left(-\frac{7\pi}{12}\right) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) \end{bmatrix}, \; , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\mathrm{Sin}\left(\frac{7\pi}{30}\right)\mathrm{Cos}\left(\frac{\pi}{15}\right) - \mathrm{Cos}\left(\frac{7\pi}{30}\right)\mathrm{Sin}\left(\frac{\pi}{15}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .2 = \left(2\,\mathrm{Cos}\left(\frac{\pi}{12}\right)^2 - 1 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \\ .3 = \left(\mathrm{Cos}\left(\frac{\pi}{8}\right)^2 - \mathrm{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .4 = \left(\mathrm{Cos}\left(\frac{\pi}{3}\right)\mathrm{Cos}\left(\frac{\pi}{12}\right) + \mathrm{Sin}\left(\frac{\pi}{3}\right)\mathrm{Sin}\left(\frac{\pi}{12}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .5 = \left(2\,\mathrm{Sin}(22.5^o)\,\mathrm{Cos}(22.5^o) = \left(\mathrm{Sin}(45^o) = \frac{\sqrt{2}}{2}\right)\right) & .6 = \left(\frac{2\,\mathrm{Tan}(15^o)}{1 - \mathrm{Tan}(15^o)^2} = \left(\mathrm{Tan}(30^o) = \frac{\sqrt{3}}{3}\right)\right) \\ .7 = \left(\frac{\mathrm{Tan}(70^o) - \mathrm{Tan}(10^o)}{1 + \mathrm{Tan}(70^o)\,\mathrm{Tan}(10^o)} = (\mathrm{Tan}(60^o) = \sqrt{3})\right) & .8 = \left(\mathrm{Cos}\left(\frac{\pi}{18}\right)\mathrm{Cos}\left(\frac{4\pi}{9}\right) - \mathrm{Sin}\left(\frac{\pi}{18}\right)\mathrm{Sin}\left(\frac{4\pi}{9}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{2}\right) = 0\right)\right) \\ .9 = \left(1 - 2\,\mathrm{Sin}(15^o)^2 = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) & .10 = \left(\frac{\mathrm{Tan}(25^o) + \mathrm{Tan}(5^o)}{1 - \mathrm{Tan}(25^o)\,\mathrm{Tan}(5^o)} = \left(\mathrm{Tan}(30^o) = \frac{\sqrt{3}}{3}\right)\right) \end{bmatrix}, \; , \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ [[M\;a\;t\;h\;@\;M\;U\;T]] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{\sqrt{3}}{2}\right) & .2 = \left(\mathrm{Cos}(\beta) = -\frac{\sqrt{33}}{7}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = \frac{4\sqrt{33}}{33}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = -\frac{2}{7} + \frac{\sqrt{3}\sqrt{33}}{14}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = -\frac{\sqrt{33}}{14} + \frac{2\sqrt{3}}{7}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = -\frac{49\sqrt{3}}{15} + \frac{16\sqrt{3}\sqrt{11}}{15}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = \frac{8\sqrt{33}}{49}\right) & .8 = (\mathrm{Tan}(2\alpha) = -\sqrt{3}) \end{bmatrix}, \; , \; Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = -\frac{2\sqrt{6}}{5}\right) & .2 = \left(\mathrm{Sin}(\beta) = -\frac{2\sqrt{14}}{9}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = -\frac{2\sqrt{14}}{5}\right) & .4 = \left(\mathrm{Sin}(\alpha - \beta) = -\frac{4\sqrt{14}\sqrt{6}}{45} + \frac{1}{9}\right) \\ .5 = \left(\mathrm{Cos}(\beta - \alpha) = -\frac{2\sqrt{6}}{9} - \frac{2\sqrt{14}}{45}\right) & .6 = \left(\mathrm{Tan}(\alpha + \beta) = -\frac{81\sqrt{2}\sqrt{3}}{272} - \frac{125\sqrt{2}\sqrt{7}}{272}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{20\sqrt{14}}{81}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = -\frac{4\sqrt{6}}{23}\right) \end{bmatrix}, \; , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Cos}(9^o) = (\mathrm{Sqrt}(0.9755) = 0.988)), \; , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Sin}(22^o) = (\mathrm{Sqrt}(0.1405) = 0.375)), \; , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\text{Sin}\left(\frac{7\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\text{Cos}(75^o) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .3 = \left(\text{Tan}\left(\frac{\pi}{12}\right) = 2 - \sqrt{3}\right) & .4 = (\text{Tan}(165^o) = -2 + \sqrt{3}) \\ .5 = \left(\text{Sin}\left(-\frac{7\pi}{12}\right) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .6 = (\text{Cot}((\text{-}285)^o) = 2 - \sqrt{3}) \\ .7 = \left(\text{Csc}\left(-\frac{17\pi}{12}\right) = \sqrt{2}\sqrt{3} - \sqrt{2}\right) & .8 = (\text{Sec}((\text{-}345)^o) = \sqrt{2}\sqrt{3} - \sqrt{2}) \end{bmatrix}, \;, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\text{Sin}\left(\frac{11\pi}{18}\right)\text{Cos}\left(\frac{\pi}{9}\right) - \text{Cos}\left(\frac{11\pi}{18}\right)\text{Sin}\left(\frac{\pi}{9}\right) = \left(\text{Sin}\left(\frac{\pi}{2}\right) = 1\right)\right) & .2 = \left(2\,\text{Cos}(22.5^o)^2 - 1 = \left(\text{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \\ .3 = \left(\frac{\text{Tan}\left(\frac{2\pi}{5}\right) - \text{Tan}\left(\frac{\pi}{15}\right)}{1 + \text{Tan}\left(\frac{2\pi}{5}\right)\text{Tan}\left(\frac{\pi}{15}\right)} = \left(\text{Tan}\left(\frac{\pi}{3}\right) = \sqrt{3}\right)\right) & .4 = \left(\text{Cos}(15^o)^2 - \text{Sin}(15^o)^2 = \left(\text{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) \\ .5 = \left(\frac{\text{Tan}(35^o) + \text{Tan}(10^o)}{1 - \text{Tan}(35^o)\,\text{Tan}(10^o)} = (\text{Tan}(45^o) = 1)\right) & .6 = \left(\text{Cos}(55^o)\,\text{Cos}(10^o) + \text{Sin}(55^o)\,\text{Sin}(10^o) = \left(\text{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \\ .7 = \left(\frac{2\,\text{Tan}\left(\frac{\pi}{8}\right)}{1 - \text{Tan}\left(\frac{\pi}{8}\right)^2} = \left(\text{Tan}\left(\frac{\pi}{4}\right) = \text{Tan}\left(\frac{\pi}{4}\right)\right)\right) & .8 = \left(1 - 2\,\text{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\text{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .9 = \left(2\,\text{Sin}\left(\frac{\pi}{12}\right)\text{Cos}\left(\frac{\pi}{12}\right) = \left(\text{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .10 = \left(\text{Cos}(18^o)\,\text{Cos}(12^o) - \text{Sin}(18^o)\,\text{Sin}(12^o) = \left(\text{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) \end{bmatrix}, \;, \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \left[\left[\begin{matrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{matrix}\right]\right] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\text{Cos}(\alpha) = \frac{\sqrt{33}}{7}\right) & .2 = \left(\text{Sin}(\beta) = \frac{\sqrt{5}}{3}\right) \\ .3 = \left(\text{Tan}(\alpha) = \frac{4\sqrt{33}}{33}\right) & .4 = \left(\text{Sin}(\alpha - \beta) = -\frac{8}{21} - \frac{\sqrt{33}\sqrt{5}}{21}\right) \\ .5 = \left(\text{Cos}(\alpha + \beta) = -\frac{2\sqrt{33}}{21} - \frac{4\sqrt{5}}{21}\right) & .6 = \left(\text{Tan}(\beta - \alpha) = -\frac{49\sqrt{5}}{26} - \frac{9\sqrt{33}}{13}\right) \\ .7 = \left(\text{Cos}(2\beta) = \frac{-1}{9}\right) & .8 = \left(\text{Tan}(2\alpha) = \frac{8\sqrt{33}}{17}\right) \end{bmatrix}, \;, Ans4 = \begin{bmatrix} .1 = \left(\text{Cos}(\alpha) = \frac{2\sqrt{6}}{7}\right) & .2 = \left(\text{Sin}(\beta) = -\frac{\sqrt{55}}{8}\right) \\ .3 = \left(\text{Tan}(\beta) = \frac{\sqrt{55}}{3}\right) & .4 = \left(\text{Sin}(\alpha + \beta) = \frac{15}{56} - \frac{\sqrt{6}\sqrt{55}}{28}\right) \\ .5 = \left(\text{Cos}(\alpha - \beta) = -\frac{3\sqrt{6}}{28} + \frac{5\sqrt{55}}{56}\right) & .6 = \left(\text{Tan}(\beta - \alpha) = -\frac{147\sqrt{55}}{1159} - \frac{640\sqrt{6}}{1159}\right) \\ .7 = \left(\text{Sin}(2\alpha) = -\frac{20\sqrt{6}}{49}\right) & .8 = \left(\text{Tan}(2\beta) = -\frac{3\sqrt{55}}{23}\right) \end{bmatrix}, \;, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\text{Sin}(40^o) = (\text{Sqrt}(0.4130) = 0.643)), \;, \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\text{Cos}(17^o) = (\text{Sqrt}(0.9145) = 0.956)), \;, \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(105^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Cos}\left(\frac{\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = (\mathrm{Tan}(75^o) = 2 + \sqrt{3}) & .4 = (\mathrm{Csc}((-15)^o) = -\sqrt{2}\sqrt{3} - \sqrt{2}) \\ .5 = \left(\mathrm{Sec}\left(\frac{13\pi}{12}\right) = -\sqrt{2}\sqrt{3} + \sqrt{2}\right) & .6 = \left(\mathrm{Cot}\left(-\frac{7\pi}{12}\right) = 2 - \sqrt{3}\right) \\ .7 = (\mathrm{Tan}((-195)^o) = -2 + \sqrt{3}) & .8 = \left(\mathrm{Cos}((-165)^o) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(15^o)^2 - \mathrm{Sin}(15^o)^2 = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) & .2 = \left(\mathrm{Sin}\left(\frac{7\pi}{18}\right)\mathrm{Cos}\left(\frac{\pi}{9}\right) + \mathrm{Cos}\left(\frac{7\pi}{18}\right)\mathrm{Sin}\left(\frac{\pi}{9}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{2}\right) = 1\right)\right) \\ .3 = \left(\frac{\mathrm{Tan}\left(\frac{5\pi}{18}\right) - \mathrm{Tan}\left(\frac{\pi}{9}\right)}{1 + \mathrm{Tan}\left(\frac{5\pi}{18}\right)\mathrm{Tan}\left(\frac{\pi}{9}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3}\right)\right) & .4 = \left(\mathrm{Cos}(20^o)\,\mathrm{Cos}(10^o) - \mathrm{Sin}(20^o)\,\mathrm{Sin}(10^o) = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) \\ .5 = \left(2\,\mathrm{Sin}\left(\frac{\pi}{12}\right)\mathrm{Cos}\left(\frac{\pi}{12}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .6 = \left(\frac{2\,\mathrm{Tan}(22.5^o)}{1 - \mathrm{Tan}(22.5^o)^2} = (\mathrm{Tan}(45^o) = 1)\right) \\ .7 = \left(\frac{\mathrm{Tan}(12^o) + \mathrm{Tan}(33^o)}{1 - \mathrm{Tan}(12^o)\,\mathrm{Tan}(33^o)} = (\mathrm{Tan}(45^o) = 1)\right) & .8 = \left(\mathrm{Cos}(70^o)\,\mathrm{Cos}(10^o) + \mathrm{Sin}(70^o)\,\mathrm{Sin}(10^o) = \left(\mathrm{Cos}(60^o) = \frac{1}{2}\right)\right) \\ .9 = \left(1 - 2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .10 = \left(2\,\mathrm{Cos}(22.5^o)^2 - 1 = \left(\mathrm{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \begin{bmatrix}\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\end{bmatrix} \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{\sqrt{21}}{5}\right) & .2 = \left(\mathrm{Cos}(\beta) = \frac{-3}{5}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = \frac{\sqrt{21}}{2}\right) & .4 = \left(\mathrm{Sin}(\alpha+\beta) = -\frac{3\sqrt{21}}{25} + \frac{8}{25}\right) \\ .5 = \left(\mathrm{Cos}(\alpha-\beta) = -\frac{6}{25} + \frac{4\sqrt{21}}{25}\right) & .6 = \left(\mathrm{Tan}(\beta-\alpha) = 1 + \frac{\sqrt{21}}{6}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = \frac{-24}{25}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = -\frac{4\sqrt{21}}{17}\right) \end{bmatrix}, \quad Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = -\frac{2\sqrt{6}}{7}\right) & .2 = \left(\mathrm{Cos}(\beta) = -\frac{2\sqrt{2}}{3}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = -\frac{2\sqrt{6}}{5}\right) & .4 = \left(\mathrm{Sin}(\beta-\alpha) = -\frac{5}{21} - \frac{4\sqrt{6}\sqrt{2}}{21}\right) \\ .5 = \left(\mathrm{Cos}(\alpha-\beta) = -\frac{10\sqrt{2}}{21} + \frac{2\sqrt{6}}{21}\right) & .6 = \left(\mathrm{Tan}(\alpha+\beta) = -\frac{45\sqrt{2}\sqrt{3}}{88} + \frac{49\sqrt{2}}{88}\right) \\ .7 = \left(\mathrm{Cos}(2\beta) = \frac{7}{9}\right) & .8 = (\mathrm{Tan}(2\alpha) = -20\sqrt{6}) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Sin}(19^o) = (\mathrm{Sqrt}(0.1060) = 0.326)), \quad , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Cos}(8^o) = (\mathrm{Sqrt}(0.9805) = 0.990)), \quad , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1=\begin{bmatrix} .1=\left(\mathrm{Sin}\left(\frac{7\pi}{12}\right)=\frac{\sqrt{2}}{4}+\frac{\sqrt{2}\sqrt{3}}{4}\right) & .2=\left(\mathrm{Cos}(75^o)=\frac{\sqrt{2}\sqrt{3}}{4}-\frac{\sqrt{2}}{4}\right)\\ .3=\left(\mathrm{Tan}\left(\frac{\pi}{12}\right)=2-\sqrt{3}\right) & .4=\left(\mathrm{Cot}\left(-\frac{7\pi}{12}\right)=2-\sqrt{3}\right)\\ .5=\left(\mathrm{Cos}(165^o)=-\frac{\sqrt{2}}{4}-\frac{\sqrt{2}\sqrt{3}}{4}\right) & .6=(\mathrm{Csc}(285^o)=-\sqrt{2}\sqrt{3}+\sqrt{2})\\ .7=\left(\mathrm{Tan}\left(-\frac{23\pi}{12}\right)=2-\sqrt{3}\right) & .8=\left(\mathrm{Sec}\left(-\frac{19\pi}{12}\right)=\sqrt{2}\sqrt{3}+\sqrt{2}\right)\end{bmatrix},\ ,\begin{bmatrix}:)\\ :(\\ M\\ a\\ t\\ h\\ @\\ M\\ U\\ T\\ :)\\ :(\end{bmatrix}$$

$$Ans2=\begin{bmatrix} .1=\left(2\,\mathrm{Cos}\left(\frac{\pi}{12}\right)^2-1=\left(\mathrm{Cos}\left(\frac{\pi}{6}\right)=\frac{\sqrt{3}}{2}\right)\right) & .2=\left(2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)\mathrm{Cos}\left(\frac{\pi}{8}\right)=\left(\mathrm{Sin}\left(\frac{\pi}{4}\right)=\frac{\sqrt{2}}{2}\right)\right)\\ .3=\left(\frac{\mathrm{Tan}\left(\frac{11\pi}{60}\right)+\mathrm{Tan}\left(\frac{\pi}{15}\right)}{1-\mathrm{Tan}\left(\frac{11\pi}{60}\right)\mathrm{Tan}\left(\frac{\pi}{15}\right)}=\left(\mathrm{Tan}\left(\frac{\pi}{4}\right)=1\right)\right) & .4=\left(\mathrm{Sin}\left(\frac{\pi}{18}\right)\mathrm{Cos}\left(\frac{\pi}{9}\right)+\mathrm{Cos}\left(\frac{\pi}{18}\right)\mathrm{Sin}\left(\frac{\pi}{9}\right)=\left(\mathrm{Sin}\left(\frac{\pi}{6}\right)=\frac{1}{2}\right)\right)\\ .5=\left(\frac{2\,\mathrm{Tan}\left(\frac{\pi}{8}\right)}{1-\mathrm{Tan}\left(\frac{\pi}{8}\right)^2}=\left(\mathrm{Tan}\left(\frac{\pi}{4}\right)=\mathrm{Tan}\left(\frac{\pi}{4}\right)\right)\right) & .6=\left(\mathrm{Cos}(40^o)\,\mathrm{Cos}(20^o)-\mathrm{Sin}(40^o)\,\mathrm{Sin}(20^o)=\left(\mathrm{Cos}(60^o)=\frac{1}{2}\right)\right)\\ .7=\left(\mathrm{Cos}(22.5^o)^2-\mathrm{Sin}(22.5^o)^2=\left(\mathrm{Cos}(45^o)=\frac{\sqrt{2}}{2}\right)\right) & .8=\left(\mathrm{Cos}(80^o)\,\mathrm{Cos}(20^o)+\mathrm{Sin}(80^o)\,\mathrm{Sin}(20^o)=\left(\mathrm{Cos}(60^o)=\frac{1}{2}\right)\right)\\ .9=\left(1-2\,\mathrm{Sin}(15^o)^2=\left(\mathrm{Cos}(30^o)=\frac{\sqrt{3}}{2}\right)\right) & .10=\left(\frac{\mathrm{Tan}\left(\frac{19\pi}{60}\right)-\mathrm{Tan}\left(\frac{\pi}{15}\right)}{1+\mathrm{Tan}\left(\frac{19\pi}{60}\right)\mathrm{Tan}\left(\frac{\pi}{15}\right)}=\left(\mathrm{Tan}\left(\frac{\pi}{4}\right)=1\right)\right)\end{bmatrix},\ ,\begin{bmatrix}:)\\ :(\\ :)\\ :(\\ \left[\left[\begin{matrix}M\\ a\\ t\\ h\\ @\\ M\\ U\\ T\end{matrix}\right]\right]\\ :)\\ :(\\ :)\\ :(\\ :)\\ :(\end{bmatrix}$$

$$Ans3=\begin{bmatrix} .1=\left(\mathrm{Cos}(\alpha)=\frac{\sqrt{11}}{6}\right) & .2=\left(\mathrm{Sin}(\beta)=-\frac{\sqrt{7}}{4}\right)\\ .3=\left(\mathrm{Tan}(\alpha)=\frac{5\sqrt{11}}{11}\right) & .4=\left(\mathrm{Sin}(\alpha-\beta)=-\frac{5}{8}+\frac{\sqrt{11}\sqrt{7}}{24}\right)\\ .5=\left(\mathrm{Cos}(\alpha+\beta)=-\frac{\sqrt{11}}{8}+\frac{5\sqrt{7}}{24}\right) & .6=\left(\mathrm{Tan}(\beta-\alpha)=-\frac{27\sqrt{7}}{19}+\frac{20\sqrt{11}}{19}\right)\\ .7=\left(\mathrm{Cos}(2\beta)=\frac{1}{8}\right) & .8=\left(\mathrm{Tan}(2\alpha)=-\frac{5\sqrt{11}}{7}\right)\end{bmatrix},\ ,\ Ans4=\begin{bmatrix} .1=\left(\mathrm{Cos}(\alpha)=\frac{2\sqrt{10}}{7}\right) & .2=\left(\mathrm{Sin}(\beta)=\frac{\sqrt{5}}{3}\right)\\ .3=\left(\mathrm{Tan}(\beta)=-\frac{\sqrt{5}}{2}\right) & .4=\left(\mathrm{Sin}(\alpha+\beta)=\frac{2}{7}+\frac{2\sqrt{10}\sqrt{5}}{21}\right)\\ .5=\left(\mathrm{Cos}(\alpha-\beta)=-\frac{4\sqrt{10}}{21}-\frac{\sqrt{5}}{7}\right) & .6=\left(\mathrm{Tan}(\beta-\alpha)=-\frac{98\sqrt{5}}{115}+\frac{54\sqrt{5}\sqrt{2}}{115}\right)\\ .7=\left(\mathrm{Cos}(2\alpha)=\frac{31}{49}\right) & .8=(\mathrm{Tan}(2\beta)=4\sqrt{5})\end{bmatrix},\ ,\begin{bmatrix}:)\\ :(\\ M\\ a\\ t\\ h\\ @\\ M\\ U\\ T\\ :)\\ :(\end{bmatrix}$$

$$Ans5=(\mathrm{Sin}(18^o)=(\mathrm{Sqrt}(0.0955)=0.309)),\ ,\begin{bmatrix}M\\ U\\ T\end{bmatrix}$$

$$Ans6=(\mathrm{Cos}(41^o)=(\mathrm{Sqrt}(0.5695)=0.755)),\ ,\begin{bmatrix}M\\ U\\ T\end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}\left(\frac{5\pi}{12}\right) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) & .2 = \left(\mathrm{Sin}(15^o) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .3 = \left(\mathrm{Tan}\left(\frac{7\pi}{12}\right) = -2 - \sqrt{3}\right) & .4 = \left(\mathrm{Tan}\left(-\frac{13\pi}{12}\right) = -2 + \sqrt{3}\right) \\ .5 = (\mathrm{Cot}(285^o) = -2 + \sqrt{3}) & .6 = (\mathrm{Csc}((\text{-}105)^o) = -\sqrt{2}\sqrt{3} + \sqrt{2}) \\ .7 = \left(\mathrm{Sin}\left(-\frac{11\pi}{12}\right) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .8 = (\mathrm{Sec}((\text{-}75)^o) = \sqrt{2}\sqrt{3} + \sqrt{2}) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\mathrm{Sin}\left(\frac{\pi}{18}\right)\mathrm{Cos}\left(\frac{7\pi}{36}\right) + \mathrm{Cos}\left(\frac{\pi}{18}\right)\mathrm{Sin}\left(\frac{7\pi}{36}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .2 = \left(\frac{\mathrm{Tan}\left(\frac{7\pi}{30}\right) - \mathrm{Tan}\left(\frac{\pi}{15}\right)}{1 + \mathrm{Tan}\left(\frac{7\pi}{30}\right)\mathrm{Tan}\left(\frac{\pi}{15}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3}\right)\right) \\ .3 = \left(1 - 2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .4 = \left(\frac{2\,\mathrm{Tan}(22.5^o)}{1 - \mathrm{Tan}(22.5^o)^2} = (\mathrm{Tan}(45^o) = 1)\right) \\ .5 = \left(2\,\mathrm{Sin}\left(\frac{\pi}{12}\right)\mathrm{Cos}\left(\frac{\pi}{12}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .6 = \left(\mathrm{Cos}(22.5^o)^2 - \mathrm{Sin}(22.5^o)^2 = \left(\mathrm{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \\ .7 = \left(\frac{\mathrm{Tan}\left(\frac{5\pi}{18}\right) + \mathrm{Tan}\left(\frac{\pi}{18}\right)}{1 - \mathrm{Tan}\left(\frac{5\pi}{18}\right)\mathrm{Tan}\left(\frac{\pi}{18}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{3}\right) = \sqrt{3}\right)\right) & .8 = \left(2\,\mathrm{Cos}(15^o)^2 - 1 = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) \\ .9 = (\mathrm{Sin}(105^o)\mathrm{Cos}(15^o) - \mathrm{Cos}(105^o)\mathrm{Sin}(15^o) = (\mathrm{Sin}(90^o) = 1)) & .10 = \left(\mathrm{Cos}(57^o)\mathrm{Cos}(12^o) + \mathrm{Sin}(57^o)\mathrm{Sin}(12^o) = \left(\mathrm{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \left[\left[\begin{matrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{matrix}\right]\right] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = \frac{\sqrt{5}}{3}\right) & .2 = \left(\mathrm{Sin}(\beta) = -\frac{2\sqrt{6}}{7}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = \frac{2\sqrt{5}}{5}\right) & .4 = \left(\mathrm{Sin}(\alpha+\beta) = \frac{10}{21} - \frac{2\sqrt{6}\sqrt{5}}{21}\right) \\ .5 = \left(\mathrm{Cos}(\alpha-\beta) = \frac{5\sqrt{5}}{21} - \frac{4\sqrt{6}}{21}\right) & .6 = \left(\mathrm{Tan}(\beta-\alpha) = -\frac{90\sqrt{6}}{29} - \frac{98\sqrt{5}}{29}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{20\sqrt{6}}{49}\right) & .8 = (\mathrm{Tan}(2\alpha) = 4\sqrt{5}) \end{bmatrix}, \quad Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = -\frac{\sqrt{33}}{7}\right) & .2 = \left(\mathrm{Sin}(\beta) = -\frac{2\sqrt{10}}{7}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = \frac{2\sqrt{10}}{3}\right) & .4 = \left(\mathrm{Sin}(\beta-\alpha) = \frac{12}{49} + \frac{2\sqrt{33}\sqrt{10}}{49}\right) \\ .5 = \left(\mathrm{Cos}(\alpha-\beta) = \frac{3\sqrt{33}}{49} - \frac{8\sqrt{10}}{49}\right) & .6 = \left(\mathrm{Tan}(\alpha+\beta) = -\frac{6\sqrt{10}}{7} + \frac{4\sqrt{33}}{7}\right) \\ .7 = \left(\mathrm{Cos}(2\beta) = \frac{\text{-}31}{49}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = -\frac{8\sqrt{33}}{17}\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Sin}(32^o) = (\mathrm{Sqrt}(0.2810) = 0.530)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Cos}(21^o) = (\mathrm{Sqrt}(0.8715) = 0.934)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}\left(\frac{7\pi}{12}\right) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Sin}(15^o) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .3 = (\mathrm{Tan}(75^o) = 2+\sqrt{3}) & .4 = \left(\mathrm{Cot}\left(-\frac{17\pi}{12}\right) = -2+\sqrt{3}\right) \\ .5 = \left(\mathrm{Sin}((-15)^o) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .6 = (\mathrm{Csc}((-105)^o) = -\sqrt{2}\sqrt{3}+\sqrt{2}) \\ .7 = \left(\mathrm{Tan}\left(\frac{17\pi}{12}\right) = 2+\sqrt{3}\right) & .8 = \left(\mathrm{Cos}(195^o) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) \end{bmatrix}, \quad , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(22.5^o)^2 - \mathrm{Sin}(22.5^o)^2 = \left(\mathrm{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) & .2 = \left(2\,\mathrm{Sin}(15^o)\,\mathrm{Cos}(15^o) = \left(\mathrm{Sin}(30^o) = \frac{1}{2}\right)\right) \\ .3 = \left(\mathrm{Cos}\left(\frac{\pi}{18}\right)\mathrm{Cos}\left(\frac{4\pi}{9}\right) - \mathrm{Sin}\left(\frac{\pi}{18}\right)\mathrm{Sin}\left(\frac{4\pi}{9}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{2}\right) = 0\right)\right) & .4 = (\mathrm{Sin}(110^o)\,\mathrm{Cos}(20^o) - \mathrm{Cos}(110^o)\,\mathrm{Sin}(20^o) = (\mathrm{Sin}(90^o) = 1)) \\ .5 = \left(\mathrm{Sin}(10^o)\,\mathrm{Cos}(50^o) + \mathrm{Cos}(10^o)\,\mathrm{Sin}(50^o) = \left(\mathrm{Sin}(60^o) = \frac{\sqrt{3}}{2}\right)\right) & .6 = \left(\frac{2\,\mathrm{Tan}(15^o)}{1-\mathrm{Tan}(15^o)^2} = \left(\mathrm{Tan}(30^o) = \frac{\sqrt{3}}{3}\right)\right) \\ .7 = \left(1 - 2\,\mathrm{Sin}\left(\frac{\pi}{12}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) & .8 = \left(\frac{\mathrm{Tan}(72^o) - \mathrm{Tan}(12^o)}{1+\mathrm{Tan}(72^o)\,\mathrm{Tan}(12^o)} = (\mathrm{Tan}(60^o) = \sqrt{3})\right) \\ .9 = \left(2\,\mathrm{Cos}\left(\frac{\pi}{8}\right)^2 - 1 = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .10 = \left(\mathrm{Cos}\left(\frac{5\pi}{18}\right)\mathrm{Cos}\left(\frac{\pi}{9}\right) + \mathrm{Sin}\left(\frac{5\pi}{18}\right)\mathrm{Sin}\left(\frac{\pi}{9}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \end{bmatrix}, \quad , \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \left[\left[\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\right]\right] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = \frac{2\sqrt{2}}{3}\right) & .2 = \left(\mathrm{Sin}(\beta) = \frac{2\sqrt{14}}{9}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = -\frac{2\sqrt{14}}{5}\right) & .4 = \left(\mathrm{Sin}(\alpha-\beta) = -\frac{5}{27} - \frac{4\sqrt{2}\sqrt{14}}{27}\right) \\ .5 = \left(\mathrm{Cos}(\beta-\alpha) = -\frac{10\sqrt{2}}{27} + \frac{2\sqrt{14}}{27}\right) & .6 = \left(\mathrm{Tan}(\alpha+\beta) = \frac{9\sqrt{2}}{8} - \frac{5\sqrt{2}\sqrt{7}}{8}\right) \\ .7 = \left(\mathrm{Cos}(2\alpha) = \frac{7}{9}\right) & .8 = \left(\mathrm{Tan}(2\beta) = \frac{20\sqrt{14}}{31}\right) \end{bmatrix}, \quad , Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{-4}{5}\right) & .2 = \left(\mathrm{Cos}(\beta) = -\frac{\sqrt{3}}{2}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = \frac{\sqrt{3}}{3}\right) & .4 = \left(\mathrm{Sin}(\alpha-\beta) = \frac{2\sqrt{3}}{5} + \frac{3}{10}\right) \\ .5 = \left(\mathrm{Cos}(\beta-\alpha) = -\frac{3\sqrt{3}}{10} + \frac{2}{5}\right) & .6 = \left(\mathrm{Tan}(\alpha+\beta) = -\frac{48}{11} + \frac{25\sqrt{3}}{11}\right) \\ .7 = \left(\mathrm{Cos}(2\beta) = \frac{1}{2}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = \frac{24}{7}\right) \end{bmatrix}, \quad , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Sin}(5^o) = (\mathrm{Sqrt}(0.0075) = 0.087)), \quad , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Cos}(20^o) = (\mathrm{Sqrt}(0.8830) = 0.940)), \quad , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

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$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(15^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Sin}\left(\frac{5\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = \left(\mathrm{Tan}\left(\frac{7\pi}{12}\right) = -2 - \sqrt{3}\right) & .4 = \left(\mathrm{Cot}\left(-\frac{23\pi}{12}\right) = 2 + \sqrt{3}\right) \\ .5 = \left(\mathrm{Cos}(195^o) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .6 = \left(\mathrm{Csc}\left(\frac{23\pi}{12}\right) = -\sqrt{2}\sqrt{3} - \sqrt{2}\right) \\ .7 = (\mathrm{Tan}(165^o) = -2 + \sqrt{3}) & .8 = \left(\mathrm{Sec}\left(-\frac{5\pi}{12}\right) = \sqrt{2}\sqrt{3} + \sqrt{2}\right) \end{bmatrix}, \quad , \begin{bmatrix} \underline{:)} \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ \underline{:)} \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\mathrm{Cos}\left(\frac{11\pi}{36}\right)\mathrm{Cos}\left(\frac{\pi}{18}\right) + \mathrm{Sin}\left(\frac{11\pi}{36}\right)\mathrm{Sin}\left(\frac{\pi}{18}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .2 = \left(\frac{2\,\mathrm{Tan}(22.5^o)}{1 - \mathrm{Tan}(22.5^o)^2} = (\mathrm{Tan}(45^o) = 1)\right) \\ .3 = \left(\mathrm{Cos}\left(\frac{\pi}{15}\right)\mathrm{Cos}\left(\frac{\pi}{10}\right) - \mathrm{Sin}\left(\frac{\pi}{15}\right)\mathrm{Sin}\left(\frac{\pi}{10}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) & .4 = \left(2\,\mathrm{Sin}\left(\frac{\pi}{12}\right)\mathrm{Cos}\left(\frac{\pi}{12}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) \\ .5 = \left(\mathrm{Cos}(15^o)^2 - \mathrm{Sin}(15^o)^2 = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) & .6 = \left(\mathrm{Sin}(12^o)\,\mathrm{Cos}(33^o) + \mathrm{Cos}(12^o)\,\mathrm{Sin}(33^o) = \left(\mathrm{Sin}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \\ .7 = \left(2\,\mathrm{Cos}(22.5^o)^2 - 1 = \left(\mathrm{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) & .8 = \left(1 - 2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .9 = \left(\frac{\mathrm{Tan}\left(\frac{7\pi}{36}\right) + \mathrm{Tan}\left(\frac{5\pi}{36}\right)}{1 - \mathrm{Tan}\left(\frac{7\pi}{36}\right)\mathrm{Tan}\left(\frac{5\pi}{36}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{3}\right) = \sqrt{3}\right)\right) & .10 = \left(\mathrm{Sin}(85^o)\,\mathrm{Cos}(25^o) - \mathrm{Cos}(85^o)\,\mathrm{Sin}(25^o) = \left(\mathrm{Sin}(60^o) = \frac{\sqrt{3}}{2}\right)\right) \end{bmatrix}, \quad , \begin{bmatrix} \underline{:)} \\ :(\\ \underline{:)} \\ :(\\ \left[\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\right] \\ \underline{:)} \\ :(\\ \underline{:)} \\ :(\\ \underline{:)} \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{\sqrt{3}}{2}\right) & .2 = \left(\mathrm{Cos}(\beta) = \frac{4}{5}\right) \\ .3 = (\mathrm{Tan}(\alpha) = \sqrt{3}) & .4 = \left(\mathrm{Sin}(\alpha + \beta) = \frac{2\sqrt{3}}{5} - \frac{3}{10}\right) \\ .5 = \left(\mathrm{Cos}(\beta - \alpha) = -\frac{3\sqrt{3}}{10} + \frac{2}{5}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = -\frac{48}{11} - \frac{25\sqrt{3}}{11}\right) \\ .7 = \left(\mathrm{Cos}(2\beta) = \frac{7}{25}\right) & .8 = (\mathrm{Tan}(2\alpha) = -\sqrt{3}) \end{bmatrix}, \quad , \quad Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = -\frac{2\sqrt{2}}{3}\right) & .2 = \left(\mathrm{Sin}(\beta) = \frac{\sqrt{3}}{2}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = \frac{\sqrt{2}}{4}\right) & .4 = \left(\mathrm{Sin}(\alpha - \beta) = \frac{1}{6} + \frac{\sqrt{2}\sqrt{3}}{3}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = \frac{\sqrt{2}}{3} + \frac{\sqrt{3}}{6}\right) & .6 = \left(\mathrm{Tan}(\beta - \alpha) = -\frac{9\sqrt{3}}{5} - \frac{8\sqrt{2}}{5}\right) \\ .7 = \left(\mathrm{Cos}(2\beta) = \frac{-1}{2}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = \frac{4\sqrt{2}}{7}\right) \end{bmatrix}, \quad , \begin{bmatrix} \underline{:)} \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ \underline{:)} \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Cos}(28^o) = (\mathrm{Sqrt}(0.7795) = 0.883)), \quad , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Sin}(17^o) = (\mathrm{Sqrt}(0.0855) = 0.292)), \quad , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\text{Sin}(105^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\text{Cos}\left(\frac{\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = (\text{Tan}(75^o) = 2 + \sqrt{3}) & .4 = \left(\text{Cot}\left(-\frac{7\pi}{12}\right) = 2 - \sqrt{3}\right) \\ .5 = (\text{Csc}((\text{-}165)^o) = -\sqrt{2}\sqrt{3} - \sqrt{2}) & .6 = \left(\text{Cos}\left(\frac{13\pi}{12}\right) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .7 = (\text{Tan}((\text{-}255)^o) = -2 - \sqrt{3}) & .8 = \left(\text{Sin}((\text{-}285)^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \end{bmatrix}, \quad , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\text{Sin}\left(\frac{\pi}{36}\right)\text{Cos}\left(\frac{5\pi}{36}\right) + \text{Cos}\left(\frac{\pi}{36}\right)\text{Sin}\left(\frac{5\pi}{36}\right) = \left(\text{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .2 = \left(\text{Sin}(65^o)\,\text{Cos}(20^o) - \text{Cos}(65^o)\,\text{Sin}(20^o) = \left(\text{Sin}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \\ .3 = \left(\text{Cos}(22.5^o)^2 - \text{Sin}(22.5^o)^2 = \left(\text{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) & .4 = \left(1 - 2\,\text{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\text{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .5 = \left(\frac{2\,\text{Tan}\left(\frac{\pi}{8}\right)}{1 - \text{Tan}\left(\frac{\pi}{8}\right)^2} = \left(\text{Tan}\left(\frac{\pi}{4}\right) = \text{Tan}\left(\frac{\pi}{4}\right)\right)\right) & .6 = \left(2\,\text{Sin}(15^o)\,\text{Cos}(15^o) = \left(\text{Sin}(30^o) = \frac{1}{2}\right)\right) \\ .7 = \left(2\,\text{Cos}\left(\frac{\pi}{12}\right)^2 - 1 = \left(\text{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) & .8 = \left(\frac{\text{Tan}(80^o) - \text{Tan}(20^o)}{1 + \text{Tan}(80^o)\,\text{Tan}(20^o)} = (\text{Tan}(60^o) = \sqrt{3})\right) \\ .9 = \left(\frac{\text{Tan}\left(\frac{4\pi}{15}\right) + \text{Tan}\left(\frac{\pi}{15}\right)}{1 - \text{Tan}\left(\frac{4\pi}{15}\right)\text{Tan}\left(\frac{\pi}{15}\right)} = \left(\text{Tan}\left(\frac{\pi}{3}\right) = \sqrt{3}\right)\right) & .10 = \left(\text{Cos}\left(\frac{7\pi}{36}\right)\text{Cos}\left(\frac{\pi}{36}\right) + \text{Sin}\left(\frac{7\pi}{36}\right)\text{Sin}\left(\frac{\pi}{36}\right) = \left(\text{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \end{bmatrix}, \quad , \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \left[\left[\begin{matrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{matrix}\right]\right] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\text{Sin}(\alpha) = \frac{2\sqrt{2}}{3}\right) & .2 = \left(\text{Cos}(\beta) = \frac{2\sqrt{14}}{9}\right) \\ .3 = (\text{Tan}(\alpha) = 2\sqrt{2}) & .4 = \left(\text{Sin}(\alpha - \beta) = \frac{4\sqrt{2}\sqrt{14}}{27} + \frac{5}{27}\right) \\ .5 = \left(\text{Cos}(\beta - \alpha) = -\frac{10\sqrt{2}}{27} + \frac{2\sqrt{14}}{27}\right) & .6 = \left(\text{Tan}(\alpha + \beta) = -\frac{9\sqrt{2}}{8} + \frac{5\sqrt{2}\sqrt{7}}{8}\right) \\ .7 = \left(\text{Cos}(2\beta) = \frac{31}{81}\right) & .8 = \left(\text{Tan}(2\alpha) = -\frac{4\sqrt{2}}{7}\right) \end{bmatrix}, \quad , \quad Ans4 = \begin{bmatrix} .1 = \left(\text{Sin}(\alpha) = -\frac{\sqrt{21}}{5}\right) & .2 = \left(\text{Cos}(\beta) = -\frac{\sqrt{7}}{4}\right) \\ .3 = \left(\text{Tan}(\beta) = -\frac{3\sqrt{7}}{7}\right) & .4 = \left(\text{Sin}(\alpha - \beta) = \frac{\sqrt{21}\sqrt{7}}{20} + \frac{3}{10}\right) \\ .5 = \left(\text{Cos}(\alpha + \beta) = \frac{\sqrt{7}}{10} + \frac{3\sqrt{21}}{20}\right) & .6 = \left(\text{Tan}(\beta - \alpha) = \frac{75\sqrt{7}}{161} + \frac{32\sqrt{7}\sqrt{3}}{161}\right) \\ .7 = \left(\text{Cos}(2\beta) = \frac{\text{-}1}{8}\right) & .8 = \left(\text{Tan}(2\alpha) = -\frac{4\sqrt{21}}{17}\right) \end{bmatrix}, \quad , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\text{Cos}(21^o) = (\text{Sqrt}(0.8715) = 0.934)), \quad , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\text{Sin}(5^o) = (\text{Sqrt}(0.0075) = 0.087)), \quad , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

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$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}\left(\frac{7\pi}{12}\right) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Sin}(75^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = \left(\mathrm{Tan}\left(\frac{\pi}{12}\right) = 2 - \sqrt{3}\right) & .4 = \left(\mathrm{Cos}\left(-\frac{5\pi}{12}\right) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .5 = (\mathrm{Sec}((-345)^o) = \sqrt{2}\sqrt{3} - \sqrt{2}) & .6 = \left(\mathrm{Cot}\left(-\frac{11\pi}{12}\right) = 2 + \sqrt{3}\right) \\ .7 = (\mathrm{Tan}((-285)^o) = 2 + \sqrt{3}) & .8 = (\mathrm{Csc}(255^o) = -\sqrt{2}\sqrt{3} + \sqrt{2}) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = (\mathrm{Sin}(100^o)\mathrm{Cos}(10^o) - \mathrm{Cos}(100^o)\mathrm{Sin}(10^o) = (\mathrm{Sin}(90^o) = 1)) & .2 = \left(2\,\mathrm{Sin}(22.5^o)\mathrm{Cos}(22.5^o) = \left(\mathrm{Sin}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \\ .3 = \left(\mathrm{Cos}(15^o)^2 - \mathrm{Sin}(15^o)^2 = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) & .4 = \left(2\,\mathrm{Cos}\left(\frac{\pi}{8}\right)^2 - 1 = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .5 = \left(\frac{\mathrm{Tan}\left(\frac{5\pi}{18}\right) - \mathrm{Tan}\left(\frac{\pi}{9}\right)}{1 + \mathrm{Tan}\left(\frac{5\pi}{18}\right)\mathrm{Tan}\left(\frac{\pi}{9}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3}\right)\right) & .6 = \left(\frac{\mathrm{Tan}\left(\frac{\pi}{15}\right) + \mathrm{Tan}\left(\frac{\pi}{10}\right)}{1 - \mathrm{Tan}\left(\frac{\pi}{15}\right)\mathrm{Tan}\left(\frac{\pi}{10}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3}\right)\right) \\ .7 = \left(\frac{2\,\mathrm{Tan}(22.5^o)}{1 - \mathrm{Tan}(22.5^o)^2} = (\mathrm{Tan}(45^o) = 1)\right) & .8 = \left(\mathrm{Sin}(35^o)\mathrm{Cos}(25^o) + \mathrm{Cos}(35^o)\mathrm{Sin}(25^o) = \left(\mathrm{Sin}(60^o) = \frac{\sqrt{3}}{2}\right)\right) \\ .9 = \left(\mathrm{Cos}\left(\frac{\pi}{12}\right)\mathrm{Cos}\left(\frac{\pi}{6}\right) - \mathrm{Sin}\left(\frac{\pi}{12}\right)\mathrm{Sin}\left(\frac{\pi}{6}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .10 = \left(1 - 2\,\mathrm{Sin}\left(\frac{\pi}{12}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \left[\left[\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\right]\right] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{\sqrt{5}}{3}\right) & .2 = \left(\mathrm{Cos}(\beta) = -\frac{\sqrt{3}}{2}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = \frac{\sqrt{5}}{2}\right) & .4 = \left(\mathrm{Sin}(\alpha - \beta) = -\frac{\sqrt{3}\sqrt{5}}{6} + \frac{1}{3}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = -\frac{\sqrt{3}}{3} + \frac{\sqrt{5}}{6}\right) & .6 = \left(\mathrm{Tan}(\beta - \alpha) = \frac{9\sqrt{3}}{7} - \frac{8\sqrt{5}}{7}\right) \\ .7 = \left(\mathrm{Cos}(2\beta) = \frac{1}{2}\right) & .8 = (\mathrm{Tan}(2\alpha) = -4\sqrt{5}) \end{bmatrix}, Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{\sqrt{7}}{4}\right) & .2 = \left(\mathrm{Cos}(\beta) = \frac{\sqrt{65}}{9}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = -\frac{4\sqrt{65}}{65}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{1}{3} - \frac{\sqrt{7}\sqrt{65}}{36}\right) \\ .5 = \left(\mathrm{Cos}(\alpha - \beta) = -\frac{\sqrt{65}}{12} - \frac{\sqrt{7}}{9}\right) & .6 = \left(\mathrm{Tan}(\alpha + \beta) = -\frac{243\sqrt{7}}{473} - \frac{64\sqrt{65}}{473}\right) \\ .7 = \left(\mathrm{Cos}(2\beta) = \frac{49}{81}\right) & .8 = (\mathrm{Tan}(2\alpha) = -3\sqrt{7}) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Sin}(23^o) = (\mathrm{Sqrt}(0.1525) = 0.391)), \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Cos}(5^o) = (\mathrm{Sqrt}(0.9925) = 0.996)), \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

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$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(15^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Sin}\left(\frac{5\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = (\mathrm{Tan}(105^o) = -2 - \sqrt{3}) & .4 = \left(\mathrm{Sin}((-285)^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .5 = \left(\mathrm{Sec}\left(-\frac{7\pi}{12}\right) = -\sqrt{2}\sqrt{3} - \sqrt{2}\right) & .6 = (\mathrm{Csc}((-75)^o) = -\sqrt{2}\sqrt{3} + \sqrt{2}) \\ .7 = \left(\mathrm{Tan}\left(-\frac{\pi}{12}\right) = -2 + \sqrt{3}\right) & .8 = \left(\mathrm{Cos}\left(\frac{23\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(20^o)\,\mathrm{Cos}(10^o) - \mathrm{Sin}(20^o)\,\mathrm{Sin}(10^o) = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) & .2 = \left(2\,\mathrm{Cos}(22.5^o)^2 - 1 = \left(\mathrm{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \\ .3 = \left(1 - 2\,\mathrm{Sin}(15^o)^2 = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) & .4 = \left(\mathrm{Cos}\left(\frac{2\pi}{5}\right)\mathrm{Cos}\left(\frac{\pi}{15}\right) + \mathrm{Sin}\left(\frac{2\pi}{5}\right)\mathrm{Sin}\left(\frac{\pi}{15}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{3}\right) = \frac{1}{2}\right)\right) \\ .5 = \left(\mathrm{Sin}\left(\frac{13\pi}{36}\right)\mathrm{Cos}\left(\frac{\pi}{9}\right) - \mathrm{Cos}\left(\frac{13\pi}{36}\right)\mathrm{Sin}\left(\frac{\pi}{9}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .6 = \left(\mathrm{Sin}\left(\frac{5\pi}{18}\right)\mathrm{Cos}\left(\frac{\pi}{18}\right) + \mathrm{Cos}\left(\frac{5\pi}{18}\right)\mathrm{Sin}\left(\frac{\pi}{18}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{3}\right) = \frac{\sqrt{3}}{2}\right)\right) \\ .7 = \left(2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)\mathrm{Cos}\left(\frac{\pi}{8}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .8 = \left(\frac{2\,\mathrm{Tan}(15^o)}{1 - \mathrm{Tan}(15^o)^2} = \left(\mathrm{Tan}(30^o) = \frac{\sqrt{3}}{3}\right)\right) \\ .9 = \left(\frac{\mathrm{Tan}(35^o) - \mathrm{Tan}(5^o)}{1 + \mathrm{Tan}(35^o)\,\mathrm{Tan}(5^o)} = \left(\mathrm{Tan}(30^o) = \frac{\sqrt{3}}{3}\right)\right) & .10 = \left(\mathrm{Cos}\left(\frac{\pi}{12}\right)^2 - \mathrm{Sin}\left(\frac{\pi}{12}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \left[\left[\begin{matrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{matrix}\right]\right] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = \frac{\sqrt{5}}{3}\right) & .2 = \left(\mathrm{Sin}(\beta) = \frac{\sqrt{15}}{4}\right) \\ .3 = (\mathrm{Tan}(\beta) = -\sqrt{15}) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{\sqrt{5}\sqrt{15}}{12} + \frac{1}{6}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = -\frac{\sqrt{5}}{12} - \frac{\sqrt{15}}{6}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = -\frac{32\sqrt{5}}{55} - \frac{9\sqrt{3}\sqrt{5}}{55}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{\sqrt{15}}{8}\right) & .8 = (\mathrm{Tan}(2\alpha) = 4\sqrt{5}) \end{bmatrix}, \ , \ Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = -\frac{2\sqrt{6}}{7}\right) & .2 = \left(\mathrm{Cos}(\beta) = \frac{\sqrt{35}}{6}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = -\frac{\sqrt{35}}{35}\right) & .4 = \left(\mathrm{Sin}(\alpha - \beta) = -\frac{\sqrt{6}\sqrt{35}}{21} - \frac{5}{42}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = -\frac{5\sqrt{35}}{42} - \frac{\sqrt{6}}{21}\right) & .6 = \left(\mathrm{Tan}(\beta - \alpha) = -\frac{49\sqrt{35}}{851} - \frac{360\sqrt{6}}{851}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{\sqrt{35}}{18}\right) & .8 = (\mathrm{Tan}(2\alpha) = 20\sqrt{6}) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Sin}(34^o) = (\mathrm{Sqrt}(0.3125) = 0.559)), \ , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Cos}(11^o) = (\mathrm{Sqrt}(0.9635) = 0.982)), \ , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

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$$Ans1 = \begin{bmatrix} .1 = \left(\text{Sin}\left(\frac{7\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\text{Cos}(15^o) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = \left(\text{Tan}\left(\frac{5\pi}{12}\right) = 2 + \sqrt{3}\right) & .4 = \left(\text{Tan}\left(-\frac{\pi}{12}\right) = -2 + \sqrt{3}\right) \\ .5 = (\text{Cot}(195^o) = 2 + \sqrt{3}) & .6 = (\text{Csc}((-105)^o) = -\sqrt{2}\sqrt{3} + \sqrt{2}) \\ .7 = \left(\text{Sec}\left(\frac{23\pi}{12}\right) = \sqrt{2}\sqrt{3} - \sqrt{2}\right) & .8 = \left(\text{Sin}(285^o) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\frac{\text{Tan}\left(\frac{\pi}{9}\right) + \text{Tan}\left(\frac{\pi}{18}\right)}{1 - \text{Tan}\left(\frac{\pi}{9}\right)\text{Tan}\left(\frac{\pi}{18}\right)} = \left(\text{Tan}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3}\right)\right) & .2 = \left(\text{Sin}\left(\frac{\pi}{6}\right)\text{Cos}\left(\frac{\pi}{12}\right) + \text{Cos}\left(\frac{\pi}{6}\right)\text{Sin}\left(\frac{\pi}{12}\right) = \left(\text{Sin}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .3 = \left(1 - 2\,\text{Sin}(22.5^o)^2 = \left(\text{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) & .4 = \left(\frac{\text{Tan}(57^o) - \text{Tan}(12^o)}{1 + \text{Tan}(57^o)\,\text{Tan}(12^o)} = (\text{Tan}(45^o) = 1)\right) \\ .5 = \left(\text{Cos}\left(\frac{4\pi}{9}\right)\text{Cos}\left(\frac{\pi}{9}\right) + \text{Sin}\left(\frac{4\pi}{9}\right)\text{Sin}\left(\frac{\pi}{9}\right) = \left(\text{Cos}\left(\frac{\pi}{3}\right) = \frac{1}{2}\right)\right) & .6 = \left(\text{Cos}(15^o)^2 - \text{Sin}(15^o)^2 = \left(\text{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) \\ .7 = \left(\frac{2\,\text{Tan}\left(\frac{\pi}{12}\right)}{1 - \text{Tan}\left(\frac{\pi}{12}\right)^2} = \left(\text{Tan}\left(\frac{\pi}{6}\right) = \text{Tan}\left(\frac{\pi}{6}\right)\right)\right) & .8 = (\text{Cos}(80^o)\,\text{Cos}(10^o) - \text{Sin}(80^o)\,\text{Sin}(10^o) = (\text{Cos}(90^o) = 0)) \\ .9 = \left(2\,\text{Cos}\left(\frac{\pi}{8}\right)^2 - 1 = \left(\text{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .10 = \left(2\,\text{Sin}\left(\frac{\pi}{12}\right)\text{Cos}\left(\frac{\pi}{12}\right) = \left(\text{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \left[\left[\begin{matrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{matrix}\right]\right] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\text{Sin}(\alpha) = \frac{\sqrt{3}}{2}\right) & .2 = \left(\text{Cos}(\beta) = \frac{\sqrt{7}}{4}\right) \\ .3 = (\text{Tan}(\alpha) = \sqrt{3}) & .4 = \left(\text{Sin}(\alpha + \beta) = \frac{\sqrt{7}\sqrt{3}}{8} - \frac{3}{8}\right) \\ .5 = \left(\text{Cos}(\alpha - \beta) = \frac{\sqrt{7}}{8} - \frac{3\sqrt{3}}{8}\right) & .6 = \left(\text{Tan}(\beta - \alpha) = \frac{3\sqrt{7}}{5} + \frac{4\sqrt{3}}{5}\right) \\ .7 = \left(\text{Cos}(2\beta) = \frac{-1}{8}\right) & .8 = (\text{Tan}(2\alpha) = -\sqrt{3}) \end{bmatrix}, \quad Ans4 = \begin{bmatrix} .1 = \left(\text{Cos}(\alpha) = -\frac{\sqrt{65}}{9}\right) & .2 = \left(\text{Sin}(\beta) = -\frac{2\sqrt{2}}{3}\right) \\ .3 = (\text{Tan}(\beta) = 2\sqrt{2}) & .4 = \left(\text{Sin}(\beta - \alpha) = \frac{2\sqrt{65}\sqrt{2}}{27} + \frac{4}{27}\right) \\ .5 = \left(\text{Cos}(\alpha - \beta) = \frac{\sqrt{65}}{27} - \frac{8\sqrt{2}}{27}\right) & .6 = \left(\text{Tan}(\alpha + \beta) = \frac{4\sqrt{65}}{7} - \frac{18\sqrt{2}}{7}\right) \\ .7 = \left(\text{Sin}(2\alpha) = -\frac{8\sqrt{65}}{81}\right) & .8 = \left(\text{Tan}(2\beta) = -\frac{4\sqrt{2}}{7}\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\text{Sin}(32^o) = (\text{Sqrt}(0.2810) = 0.530)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\text{Cos}(22^o) = (\text{Sqrt}(0.8595) = 0.927)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

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$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Sin}\left(\frac{7\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Cos}(75^{o}) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .3 = \left(\mathrm{Tan}(15^{o}) = 2 - \sqrt{3}\right) & .4 = \left(\mathrm{Cos}\left(-\frac{5\pi}{12}\right) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .5 = \left(\mathrm{Sin}((-285)^{o}) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .6 = \left(\mathrm{Csc}\left(\frac{23\pi}{12}\right) = -\sqrt{2}\sqrt{3} - \sqrt{2}\right) \\ .7 = \left(\mathrm{Cot}((-15)^{o}) = -2 - \sqrt{3}\right) & .8 = \left(\mathrm{Sec}\left(\frac{19\pi}{12}\right) = \sqrt{2}\sqrt{3} + \sqrt{2}\right) \end{bmatrix}, \quad \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(2\,\mathrm{Sin}(22.5^{o})\,\mathrm{Cos}(22.5^{o}) = \left(\mathrm{Sin}(45^{o}) = \frac{\sqrt{2}}{2}\right)\right) & .2 = \left(\frac{\mathrm{Tan}\left(\frac{4\pi}{15}\right) + \mathrm{Tan}\left(\frac{\pi}{15}\right)}{1 - \mathrm{Tan}\left(\frac{4\pi}{15}\right)\mathrm{Tan}\left(\frac{\pi}{15}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{3}\right) = \sqrt{3}\right)\right) \\ .3 = \left(\mathrm{Sin}(35^{o})\,\mathrm{Cos}(5^{o}) - \mathrm{Cos}(35^{o})\,\mathrm{Sin}(5^{o}) = \left(\mathrm{Sin}(30^{o}) = \frac{1}{2}\right)\right) & .4 = \left(2\,\mathrm{Cos}\left(\frac{\pi}{12}\right)^2 - 1 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \\ .5 = \left(1 - 2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .6 = \left(\mathrm{Cos}\left(\frac{11\pi}{36}\right)\mathrm{Cos}\left(\frac{\pi}{18}\right) + \mathrm{Sin}\left(\frac{11\pi}{36}\right)\mathrm{Sin}\left(\frac{\pi}{18}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .7 = \left(\frac{\mathrm{Tan}(72^{o}) - \mathrm{Tan}(12^{o})}{1 + \mathrm{Tan}(72^{o})\,\mathrm{Tan}(12^{o})} = \left(\mathrm{Tan}(60^{o}) = \sqrt{3}\right)\right) & .8 = \left(\mathrm{Cos}(15^{o})^2 - \mathrm{Sin}(15^{o})^2 = \left(\mathrm{Cos}(30^{o}) = \frac{\sqrt{3}}{2}\right)\right) \\ .9 = \left(\frac{2\,\mathrm{Tan}\left(\frac{\pi}{12}\right)}{1 - \mathrm{Tan}\left(\frac{\pi}{12}\right)^2} = \left(\mathrm{Tan}\left(\frac{\pi}{6}\right) = \mathrm{Tan}\left(\frac{\pi}{6}\right)\right)\right) & .10 = \left(\mathrm{Cos}(35^{o})\,\mathrm{Cos}(10^{o}) - \mathrm{Sin}(35^{o})\,\mathrm{Sin}(10^{o}) = \left(\mathrm{Cos}(45^{o}) = \frac{\sqrt{2}}{2}\right)\right) \end{bmatrix}, \quad \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \left[\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\right] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{3\sqrt{5}}{7}\right) & .2 = \left(\mathrm{Cos}(\beta) = \frac{\sqrt{3}}{2}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = -\frac{\sqrt{3}}{3}\right) & .4 = \left(\mathrm{Sin}(\alpha + \beta) = \frac{3\sqrt{3}\sqrt{5}}{14} - \frac{1}{7}\right) \\ .5 = \left(\mathrm{Cos}(\beta - \alpha) = \frac{\sqrt{3}}{7} - \frac{3\sqrt{5}}{14}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = -\frac{8\sqrt{5}}{11} - \frac{49\sqrt{3}}{33}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{\sqrt{3}}{2}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = -\frac{12\sqrt{5}}{41}\right) \end{bmatrix}, \quad Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = -\frac{\sqrt{39}}{8}\right) & .2 = \left(\mathrm{Sin}(\beta) = -\frac{3\sqrt{5}}{7}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = \frac{3\sqrt{5}}{2}\right) & .4 = \left(\mathrm{Sin}(\alpha + \beta) = -\frac{5}{28} + \frac{3\sqrt{39}\sqrt{5}}{56}\right) \\ .5 = \left(\mathrm{Cos}(\beta - \alpha) = \frac{\sqrt{39}}{28} - \frac{15\sqrt{5}}{56}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = \frac{245\sqrt{39}}{969} + \frac{128\sqrt{5}}{323}\right) \\ .7 = \left(\mathrm{Cos}(2\alpha) = \frac{7}{32}\right) & .8 = \left(\mathrm{Tan}(2\beta) = -\frac{12\sqrt{5}}{41}\right) \end{bmatrix}, \quad \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = \left(\mathrm{Cos}(25^{o}) = \left(\mathrm{Sqrt}(0.8215) = 0.906\right)\right), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = \left(\mathrm{Sin}(13^{o}) = \left(\mathrm{Sqrt}(0.0505) = 0.225\right)\right), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

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$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(75^o) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) & .2 = \left(\mathrm{Sin}\left(\frac{\pi}{12}\right) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .3 = (\mathrm{Tan}(105^o) = -2 - \sqrt{3}) & .4 = \left(\mathrm{Sin}\left(-\frac{7\pi}{12}\right) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .5 = \left(\mathrm{Cos}(165^o) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .6 = (\mathrm{Csc}((-15)^o) = -\sqrt{2}\sqrt{3} - \sqrt{2}) \\ .7 = \left(\mathrm{Cot}\left(\frac{19\pi}{12}\right) = -2 + \sqrt{3}\right) & .8 = (\mathrm{Sec}((-345)^o) = \sqrt{2}\sqrt{3} - \sqrt{2}) \end{bmatrix}, \quad \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(40^o)\,\mathrm{Cos}(20^o) - \mathrm{Sin}(40^o)\,\mathrm{Sin}(20^o) = \left(\mathrm{Cos}(60^o) = \frac{1}{2}\right)\right) & .2 = \left(\mathrm{Cos}(40^o)\,\mathrm{Cos}(10^o) + \mathrm{Sin}(40^o)\,\mathrm{Sin}(10^o) = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) \\ .3 = \left(\mathrm{Cos}\left(\frac{\pi}{12}\right)^2 - \mathrm{Sin}\left(\frac{\pi}{12}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) & .4 = (\mathrm{Sin}(102^o)\,\mathrm{Cos}(12^o) - \mathrm{Cos}(102^o)\,\mathrm{Sin}(12^o) = (\mathrm{Sin}(90^o) = 1)) \\ .5 = \left(2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)\mathrm{Cos}\left(\frac{\pi}{8}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .6 = \left(1 - 2\,\mathrm{Sin}(15^o)^2 = \left(\mathrm{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) \\ .7 = \left(2\,\mathrm{Cos}(22.5^o)^2 - 1 = \left(\mathrm{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) & .8 = \left(\frac{\mathrm{Tan}\left(\frac{\pi}{6}\right) + \mathrm{Tan}\left(\frac{\pi}{12}\right)}{1 - \mathrm{Tan}\left(\frac{\pi}{6}\right)\mathrm{Tan}\left(\frac{\pi}{12}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{4}\right) = 1\right)\right) \\ .9 = \left(\mathrm{Sin}\left(\frac{13\pi}{30}\right)\mathrm{Cos}\left(\frac{\pi}{15}\right) + \mathrm{Cos}\left(\frac{13\pi}{30}\right)\mathrm{Sin}\left(\frac{\pi}{15}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{2}\right) = 1\right)\right) & .10 = \left(\frac{2\,\mathrm{Tan}\left(\frac{\pi}{8}\right)}{1 - \mathrm{Tan}\left(\frac{\pi}{8}\right)^2} = \left(\mathrm{Tan}\left(\frac{\pi}{4}\right) = \mathrm{Tan}\left(\frac{\pi}{4}\right)\right)\right) \end{bmatrix}, \quad \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ [[M, a, t, h, @, M, U, T]] \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{3\sqrt{5}}{7}\right) & .2 = \left(\mathrm{Cos}(\beta) = -\frac{\sqrt{3}}{2}\right) \\ .3 = \left(\mathrm{Tan}(\beta) = -\frac{\sqrt{3}}{3}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{1}{7} + \frac{3\sqrt{3}\sqrt{5}}{14}\right) \\ .5 = \left(\mathrm{Cos}(\alpha - \beta) = -\frac{\sqrt{3}}{7} + \frac{3\sqrt{5}}{14}\right) & .6 = \left(\mathrm{Tan}(\alpha + \beta) = -\frac{8\sqrt{5}}{11} + \frac{49\sqrt{3}}{33}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{\sqrt{3}}{2}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = -\frac{12\sqrt{5}}{41}\right) \end{bmatrix}, \quad Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{-3}{5}\right) & .2 = \left(\mathrm{Cos}(\beta) = \frac{\sqrt{3}}{2}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = \frac{3}{4}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{2}{5} + \frac{3\sqrt{3}}{10}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = -\frac{2\sqrt{3}}{5} - \frac{3}{10}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = \frac{16}{13} + \frac{25\sqrt{3}}{39}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{\sqrt{3}}{2}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = \frac{24}{7}\right) \end{bmatrix}, \quad \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Cos}(17^o) = (\mathrm{Sqrt}(0.9145) = 0.956)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Sin}(4^o) = (\mathrm{Sqrt}(0.0050) = 0.070)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

TrigonometryExercise4 Answers for No.12641

$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(105^o) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\,\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Sin}\left(\frac{5\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\,\sqrt{3}}{4}\right) \\ .3 = \left(\mathrm{Tan}\left(\frac{\pi}{12}\right) = 2 - \sqrt{3}\right) & .4 = \left(\mathrm{Csc}\left(-\frac{23\pi}{12}\right) = \sqrt{2}\,\sqrt{3} + \sqrt{2}\right) \\ .5 = \left(\mathrm{Sin}((-165)^o) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\,\sqrt{3}}{4}\right) & .6 = \left(\mathrm{Sec}\left(\frac{23\pi}{12}\right) = \sqrt{2}\,\sqrt{3} - \sqrt{2}\right) \\ .7 = (\mathrm{Tan}((-285)^o) = 2 + \sqrt{3}) & .8 = (\mathrm{Cot}(195^o) = 2 + \sqrt{3}) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\mathrm{Cos}\left(\frac{\pi}{8}\right)^2 - \mathrm{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\mathrm{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .2 = \left(2\,\mathrm{Cos}\left(\frac{\pi}{12}\right)^2 - 1 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \\ .3 = \left(\mathrm{Sin}\left(\frac{7\pi}{30}\right)\mathrm{Cos}\left(\frac{\pi}{15}\right) - \mathrm{Cos}\left(\frac{7\pi}{30}\right)\mathrm{Sin}\left(\frac{\pi}{15}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .4 = \left(\mathrm{Cos}(55^o)\,\mathrm{Cos}(10^o) + \mathrm{Sin}(55^o)\,\mathrm{Sin}(10^o) = \left(\mathrm{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \\ .5 = \left(\frac{2\,\mathrm{Tan}(22.5^o)}{1 - \mathrm{Tan}(22.5^o)^2} = (\mathrm{Tan}(45^o) = 1)\right) & .6 = \left(1 - 2\,\mathrm{Sin}(22.5^o)^2 = \left(\mathrm{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \\ .7 = \left(\frac{\mathrm{Tan}(35^o) + \mathrm{Tan}(10^o)}{1 - \mathrm{Tan}(35^o)\,\mathrm{Tan}(10^o)} = (\mathrm{Tan}(45^o) = 1)\right) & .8 = \left(\frac{\mathrm{Tan}\left(\frac{7\pi}{18}\right) - \mathrm{Tan}\left(\frac{\pi}{18}\right)}{1 + \mathrm{Tan}\left(\frac{7\pi}{18}\right)\mathrm{Tan}\left(\frac{\pi}{18}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{3}\right) = \sqrt{3}\right)\right) \\ .9 = \left(\mathrm{Cos}(12^o)\,\mathrm{Cos}(48^o) - \mathrm{Sin}(12^o)\,\mathrm{Sin}(48^o) = \left(\mathrm{Cos}(60^o) = \frac{1}{2}\right)\right) & .10 = \left(2\,\mathrm{Sin}(15^o)\,\mathrm{Cos}(15^o) = \left(\mathrm{Sin}(30^o) = \frac{1}{2}\right)\right) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \begin{bmatrix}\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\end{bmatrix} \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{3}{5}\right) & .2 = \left(\mathrm{Cos}(\beta) = \frac{\sqrt{7}}{4}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = \frac{3}{4}\right) & .4 = \left(\mathrm{Sin}(\alpha - \beta) = \frac{3\sqrt{7}}{20} + \frac{3}{5}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = \frac{\sqrt{7}}{5} + \frac{9}{20}\right) & .6 = \left(\mathrm{Tan}(\beta - \alpha) = -\frac{75\sqrt{7}}{31} - \frac{192}{31}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{3\sqrt{7}}{8}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = \frac{24}{7}\right) \end{bmatrix}, \ , Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{2\sqrt{10}}{7}\right) & .2 = \left(\mathrm{Cos}(\beta) = \frac{-3}{5}\right) \\ .3 = \left(\mathrm{Tan}(\alpha) = -\frac{2\sqrt{10}}{3}\right) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{12}{35} + \frac{6\sqrt{10}}{35}\right) \\ .5 = \left(\mathrm{Cos}(\alpha - \beta) = \frac{9}{35} - \frac{8\sqrt{10}}{35}\right) & .6 = \left(\mathrm{Tan}(\alpha + \beta) = \frac{150\sqrt{10}}{559} - \frac{588}{559}\right) \\ .7 = \left(\mathrm{Cos}(2\alpha) = \frac{-31}{49}\right) & .8 = \left(\mathrm{Tan}(2\beta) = \frac{-24}{7}\right) \end{bmatrix}, \ , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Sin}(40^o) = (\mathrm{Sqrt}(0.4130) = 0.643)), \ , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Cos}(6^o) = (\mathrm{Sqrt}(0.9890) = 0.995)), \ , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\text{Cos}(75^o) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) & .2 = \left(\text{Sin}\left(\frac{\pi}{12}\right) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .3 = (\text{Tan}(105^o) = -2 - \sqrt{3}) & .4 = \left(\text{Tan}\left(-\frac{\pi}{12}\right) = -2 + \sqrt{3}\right) \\ .5 = \left(\text{Cos}((\text{-}165)^o) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .6 = \left(\text{Sin}((\text{-}195)^o) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .7 = \left(\text{Cot}\left(\frac{19\pi}{12}\right) = -2 + \sqrt{3}\right) & .8 = \left(\text{Csc}\left(\frac{23\pi}{12}\right) = -\sqrt{2}\sqrt{3} - \sqrt{2}\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(\left(1 - 2\,\text{Sin}(15^o)\right)^2 = \left(\text{Cos}(30^o) = \frac{\sqrt{3}}{2}\right)\right) & .2 = (\text{Sin}(75^o)\,\text{Cos}(15^o) + \text{Cos}(75^o)\,\text{Sin}(15^o) = (\text{Sin}(90^o) = 1)) \\ .3 = \left(\text{Sin}\left(\frac{7\pi}{30}\right)\text{Cos}\left(\frac{\pi}{15}\right) - \text{Cos}\left(\frac{7\pi}{30}\right)\text{Sin}\left(\frac{\pi}{15}\right) = \left(\text{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .4 = \left(\frac{\text{Tan}(85^o) - \text{Tan}(25^o)}{1 + \text{Tan}(85^o)\,\text{Tan}(25^o)} = (\text{Tan}(60^o) = \sqrt{3})\right) \\ .5 = \left(\frac{2\,\text{Tan}\left(\frac{\pi}{8}\right)}{1 - \text{Tan}\left(\frac{\pi}{8}\right)^2} = \left(\text{Tan}\left(\frac{\pi}{4}\right) = \text{Tan}\left(\frac{\pi}{4}\right)\right)\right) & .6 = \left(\frac{\text{Tan}(15^o) + \text{Tan}(30^o)}{1 - \text{Tan}(15^o)\,\text{Tan}(30^o)} = (\text{Tan}(45^o) = 1)\right) \\ .7 = \left(\text{Cos}\left(\frac{17\pi}{30}\right)\text{Cos}\left(\frac{\pi}{15}\right) + \text{Sin}\left(\frac{17\pi}{30}\right)\text{Sin}\left(\frac{\pi}{15}\right) = \left(\text{Cos}\left(\frac{\pi}{2}\right) = 0\right)\right) & .8 = \left(\text{Cos}\left(\frac{\pi}{8}\right)^2 - \text{Sin}\left(\frac{\pi}{8}\right)^2 = \left(\text{Cos}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\ .9 = \left(2\,\text{Sin}\left(\frac{\pi}{12}\right)\text{Cos}\left(\frac{\pi}{12}\right) = \left(\text{Sin}\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right) & .10 = \left(2\,\text{Cos}(22.5^o)^2 - 1 = \left(\text{Cos}(45^o) = \frac{\sqrt{2}}{2}\right)\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \begin{bmatrix}\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\end{bmatrix} \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\text{Sin}(\alpha) = \frac{2\sqrt{2}}{3}\right) & .2 = \left(\text{Cos}(\beta) = \frac{\text{-}3}{5}\right) \\ .3 = \left(\text{Tan}(\beta) = \frac{\text{-}4}{3}\right) & .4 = \left(\text{Sin}(\alpha - \beta) = -\frac{2\sqrt{2}}{5} - \frac{4}{15}\right) \\ .5 = \left(\text{Cos}(\alpha + \beta) = -\frac{1}{5} - \frac{8\sqrt{2}}{15}\right) & .6 = \left(\text{Tan}(\beta - \alpha) = \frac{108}{119} + \frac{50\sqrt{2}}{119}\right) \\ .7 = \left(\text{Cos}(2\beta) = \frac{\text{-}7}{25}\right) & .8 = \left(\text{Tan}(2\alpha) = -\frac{4\sqrt{2}}{7}\right) \end{bmatrix}, \quad Ans4 = \begin{bmatrix} .1 = \left(\text{Cos}(\alpha) = \frac{\sqrt{65}}{9}\right) & .2 = \left(\text{Sin}(\beta) = \frac{\text{-}3}{5}\right) \\ .3 = \left(\text{Tan}(\beta) = \frac{3}{4}\right) & .4 = \left(\text{Sin}(\beta - \alpha) = -\frac{\sqrt{65}}{15} - \frac{16}{45}\right) \\ .5 = \left(\text{Cos}(\alpha + \beta) = -\frac{4\sqrt{65}}{45} - \frac{4}{15}\right) & .6 = \left(\text{Tan}(\alpha - \beta) = -\frac{25\sqrt{65}}{224} - \frac{243}{224}\right) \\ .7 = \left(\text{Cos}(2\beta) = \frac{7}{25}\right) & .8 = \left(\text{Tan}(2\alpha) = -\frac{8\sqrt{65}}{49}\right) \end{bmatrix}, \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\text{Sin}(17^o) = (\text{Sqrt}(0.0855) = 0.292)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\text{Cos}(43^o) = (\text{Sqrt}(0.5350) = 0.731)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans1 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(105^{o}) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .2 = \left(\mathrm{Sin}\left(\frac{\pi}{12}\right) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) \\ .3 = \left(\mathrm{Tan}\left(\frac{5\pi}{12}\right) = 2 + \sqrt{3}\right) & .4 = \left(\mathrm{Sec}\left(-\frac{23\pi}{12}\right) = \sqrt{2}\sqrt{3} - \sqrt{2}\right) \\ .5 = \left(\mathrm{Sin}((-285)^{o}) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) & .6 = (\mathrm{Cot}((-105)^{o}) = 2 - \sqrt{3}) \\ .7 = \left(\mathrm{Csc}\left(-\frac{\pi}{12}\right) = -\sqrt{2}\sqrt{3} - \sqrt{2}\right) & .8 = \left(\mathrm{Cos}(345^{o}) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4}\right) \end{bmatrix}, \; , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)\mathrm{Cos}\left(\frac{\pi}{8}\right) = \left(\mathrm{Sin}\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .2 = \left(\mathrm{Cos}\left(\frac{2\pi}{5}\right)\mathrm{Cos}\left(\frac{\pi}{15}\right) + \mathrm{Sin}\left(\frac{2\pi}{5}\right)\mathrm{Sin}\left(\frac{\pi}{15}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{3}\right) = \frac{1}{2}\right)\right) \\ .3 = \left(\mathrm{Cos}\left(\frac{\pi}{18}\right)\mathrm{Cos}\left(\frac{4\pi}{9}\right) - \mathrm{Sin}\left(\frac{\pi}{18}\right)\mathrm{Sin}\left(\frac{4\pi}{9}\right) = \left(\mathrm{Cos}\left(\frac{\pi}{2}\right) = 0\right)\right) & .4 = \left(\mathrm{Cos}(15^{o})^{2} - \mathrm{Sin}(15^{o})^{2} = \left(\mathrm{Cos}(30^{o}) = \frac{\sqrt{3}}{2}\right)\right) \\ .5 = \left(\mathrm{Sin}(30^{o})\,\mathrm{Cos}(15^{o}) + \mathrm{Cos}(30^{o})\,\mathrm{Sin}(15^{o}) = \left(\mathrm{Sin}(45^{o}) = \frac{\sqrt{2}}{2}\right)\right) & .6 = \left(2\,\mathrm{Cos}\left(\frac{\pi}{12}\right)^{2} - 1 = \left(\mathrm{Cos}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \\ .7 = \left(\frac{\mathrm{Tan}\left(\frac{\pi}{15}\right) + \mathrm{Tan}\left(\frac{\pi}{10}\right)}{1 - \mathrm{Tan}\left(\frac{\pi}{15}\right)\mathrm{Tan}\left(\frac{\pi}{10}\right)} = \left(\mathrm{Tan}\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3}\right)\right) & .8 = \left(1 - 2\,\mathrm{Sin}(22.5^{o})^{2} = \left(\mathrm{Cos}(45^{o}) = \frac{\sqrt{2}}{2}\right)\right) \\ .9 = \left(\frac{\mathrm{Tan}(50^{o}) - \mathrm{Tan}(20^{o})}{1 + \mathrm{Tan}(50^{o})\,\mathrm{Tan}(20^{o})} = \left(\mathrm{Tan}(30^{o}) = \frac{\sqrt{3}}{3}\right)\right) & .10 = \left(\frac{2\,\mathrm{Tan}\left(\frac{\pi}{12}\right)}{1 - \mathrm{Tan}\left(\frac{\pi}{12}\right)^{2}} = \mathrm{Tan}\left(\frac{\pi}{6}\right) = \mathrm{Tan}\left(\frac{\pi}{6}\right)\right) \end{bmatrix}, \; , \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \begin{bmatrix}\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\end{bmatrix} \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\mathrm{Sin}(\alpha) = \frac{\sqrt{15}}{4}\right) & .2 = \left(\mathrm{Cos}(\beta) = -\frac{\sqrt{5}}{3}\right) \\ .3 = (\mathrm{Tan}(\alpha) = \sqrt{15}) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{\sqrt{5}\sqrt{15}}{12} + \frac{1}{6}\right) \\ .5 = \left(\mathrm{Cos}(\alpha - \beta) = -\frac{\sqrt{5}}{12} + \frac{\sqrt{15}}{6}\right) & .6 = \left(\mathrm{Tan}(\alpha + \beta) = -\frac{9\sqrt{3}\sqrt{5}}{55} + \frac{32\sqrt{5}}{55}\right) \\ .7 = \left(\mathrm{Sin}(2\beta) = -\frac{4\sqrt{5}}{9}\right) & .8 = \left(\mathrm{Tan}(2\alpha) = -\frac{\sqrt{15}}{7}\right) \end{bmatrix}, \; , \; Ans4 = \begin{bmatrix} .1 = \left(\mathrm{Cos}(\alpha) = -\frac{\sqrt{5}}{3}\right) & .2 = \left(\mathrm{Sin}(\beta) = -\frac{\sqrt{15}}{4}\right) \\ .3 = (\mathrm{Tan}(\beta) = -\sqrt{15}) & .4 = \left(\mathrm{Sin}(\beta - \alpha) = \frac{\sqrt{5}\sqrt{15}}{12} + \frac{1}{6}\right) \\ .5 = \left(\mathrm{Cos}(\alpha + \beta) = -\frac{\sqrt{5}}{12} - \frac{\sqrt{15}}{6}\right) & .6 = \left(\mathrm{Tan}(\alpha - \beta) = -\frac{32\sqrt{5}}{55} - \frac{9\sqrt{3}\sqrt{5}}{55}\right) \\ .7 = \left(\mathrm{Sin}(2\alpha) = \frac{4\sqrt{5}}{9}\right) & .8 = \left(\mathrm{Tan}(2\beta) = \frac{\sqrt{15}}{7}\right) \end{bmatrix}, \; , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\mathrm{Sin}(20^{o}) = (\mathrm{Sqrt}(0.1170) = 0.342)), \; , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\mathrm{Cos}(39^{o}) = (\mathrm{Sqrt}(0.6040) = 0.777)), \; , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

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