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$$\begin{aligned}
 \text{Ans2} &= \left[\begin{aligned}
 .1 &= \left(\cos(70^\circ) \cos(10^\circ) + \sin(70^\circ) \sin(10^\circ) = \cos(60^\circ) = \frac{1}{2} \right) & .2 &= \left(2 \sin(15^\circ) \cos(15^\circ) = \left(\sin(30^\circ) = \frac{1}{2} \right) \right) \\
 .3 &= \left(\sin\left(\frac{7\pi}{18}\right) \cos\left(\frac{\pi}{9}\right) + \cos\left(\frac{7\pi}{18}\right) \sin\left(\frac{\pi}{9}\right) = \left(\sin\left(\frac{\pi}{2}\right) = 1 \right) \right) & .4 &= \left(\cos^2\left(\frac{\pi}{12}\right) - \sin^2\left(\frac{\pi}{12}\right) = \left(\cos\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2} \right) \right) \\
 .5 &= \left(1 - 2 \sin(22.5^\circ)^2 = \left(\cos(45^\circ) = \frac{\sqrt{2}}{2} \right) \right) & .6 &= \left(2 \cos\left(\frac{\pi}{8}\right)^2 - 1 = \left(\cos\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2} \right) \right) \\
 .7 &= \left(\frac{\tan\left(\frac{7\pi}{30}\right) - \tan\left(\frac{\pi}{15}\right)}{1 + \tan\left(\frac{7\pi}{30}\right) \tan\left(\frac{\pi}{15}\right)} = \left(\tan\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3} \right) \right) & .8 &= \left(\cos(5^\circ) \cos(25^\circ) - \sin(5^\circ) \sin(25^\circ) = \left(\cos(30^\circ) = \frac{\sqrt{3}}{2} \right) \right) \\
 .9 &= \left(\frac{2 \tan(22.5^\circ)}{1 - \tan(22.5^\circ)^2} = (\tan(45^\circ) = 1) \right) & .10 &= \left(\frac{\tan(12^\circ) + \tan(33^\circ)}{1 - \tan(12^\circ) \tan(33^\circ)} = (\tan(45^\circ) = 1) \right)
 \end{aligned} \right],
 \end{aligned}$$

$$\begin{aligned} Ans5 &= (\sin(16^\circ) = (\text{Sqrt}(0.0760) = 0.276)), & \begin{bmatrix} M \\ U \\ T \end{bmatrix} \\ Ans6 &= (\cos(26^\circ) = (\text{Sqrt}(0.8080) = 0.899)), & \begin{bmatrix} M \\ U \\ T \end{bmatrix} \end{aligned}$$

$$\text{Ans 1} = \left[\begin{array}{ll} 1. I = \left(\cos(75^\circ) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4} \right) & 2. = \left(\sin\left(\frac{7\pi}{12}\right) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4} \right) \\ 3. = \left(\tan\left(\frac{\pi}{12}\right) = 2 - \sqrt{3} \right) & 4. = \left(\cos(345^\circ) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4} \right) \\ 5. = \left(\cot\left(\frac{17\pi}{12}\right) = 2 - \sqrt{3} \right) & 6. = \left(\tan\left(\frac{13\pi}{12}\right) = 2 - \sqrt{3} \right) \\ 7. = \left(\sec((-75^\circ) = \sqrt{2}\sqrt{3} + \sqrt{2} \right) & 8. = \left(\sin\left(-\frac{23\pi}{12}\right) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4} \right) \end{array} \right]$$

$$\text{Ans2} = \left[\begin{array}{ll} .1 = \left(\frac{2 \tan(15^\circ)}{1 - \tan(15^\circ)^2} = \left(\tan(30^\circ) = \frac{\sqrt{3}}{3} \right) & .2 = \left(2 \sin(15^\circ) \cos(15^\circ) = \left(\sin(30^\circ) = \frac{1}{2} \right) \right. \\ .3 = \left(\sin(57^\circ) \cos(12^\circ) - \cos(57^\circ) \sin(12^\circ) = \left(\sin(45^\circ) = \frac{\sqrt{2}}{2} \right) & .4 = \left(2 \cos\left(\frac{\pi}{8}\right)^2 - 1 = \left(\cos\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2} \right) \right. \\ .5 = \left(\cos(22.5^\circ)^2 - \sin(22.5^\circ)^2 = \left(\cos(45^\circ) = \frac{\sqrt{2}}{2} \right) & .6 = \left(1 - 2 \sin\left(\frac{\pi}{12}\right)^2 = \left(\cos\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2} \right) \right. \\ .7 = \left(\frac{\tan\left(\frac{7\pi}{36}\right) - \tan\left(\frac{\pi}{36}\right)}{1 + \tan\left(\frac{7\pi}{36}\right) \tan\left(\frac{\pi}{36}\right)} = \left(\tan\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3} \right) & .8 = \left(\sin(20^\circ) \cos(10^\circ) + \cos(20^\circ) \sin(10^\circ) = \left(\sin(30^\circ) = \frac{1}{2} \right) \right. \\ .9 = (\cos(102^\circ) \cos(12^\circ) + \sin(102^\circ) \sin(12^\circ) = (\cos(90^\circ) = 0) & .10 = \left(\cos\left(\frac{\pi}{12}\right) \cos\left(\frac{\pi}{6}\right) - \sin\left(\frac{\pi}{12}\right) \sin\left(\frac{\pi}{6}\right) = \left(\cos\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2} \right) \right. \end{array} \right]$$

$$\text{Ans3} = \begin{bmatrix} .1 = \left(\sin(\alpha) = \frac{\sqrt{7}}{4} \right) & .2 = \left(\cos(\beta) = \frac{\sqrt{3}}{2} \right) \\ .3 = \left(\tan(\alpha) = \frac{\sqrt{7}}{3} \right) & .4 = \left(\sin(\alpha - \beta) = \frac{3}{8} + \frac{\sqrt{3}\sqrt{7}}{8} \right) \\ .5 = \left(\cos(\beta - \alpha) = -\frac{\sqrt{7}}{8} + \frac{3\sqrt{3}}{8} \right) & .6 = \left(\tan(\alpha + \beta) = -\frac{4\sqrt{3}}{5} + \frac{3\sqrt{7}}{5} \right) \\ .7 = \left(\sin(2\beta) = -\frac{\sqrt{3}}{2} \right) & .8 = \left(\tan(2\alpha) = 3\sqrt{7} \right) \end{bmatrix}, \text{Ans4} = \begin{bmatrix} .1 = \left(\cos(\alpha) = -\frac{2\sqrt{2}}{3} \right) & .2 = \left(\sin(\beta) = -\frac{\sqrt{35}}{6} \right) \\ .3 = \left(\tan(\alpha) = -\frac{\sqrt{2}}{4} \right) & .4 = \left(\sin(\beta - \alpha) = \frac{\sqrt{35}\sqrt{2}}{9} + \frac{1}{18} \right) \\ .5 = \left(\cos(\alpha + \beta) = \frac{\sqrt{2}}{9} + \frac{\sqrt{35}}{18} \right) & .6 = \left(\tan(\alpha - \beta) = \frac{8\sqrt{2}}{3} + \frac{\sqrt{35}}{3} \right) \\ .7 = \left(\cos(2\alpha) = \frac{7}{9} \right) & .8 = \left(\tan(2\beta) = -\frac{\sqrt{35}}{17} \right) \end{bmatrix}$$

$$Ans5 = (\cos(33^\circ) = (\text{Sqrt}(0.7035) = 0.839)), \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\sin(20^\circ) = (\text{Sqrt}(0.1170) = 0.342)), \quad \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$\text{Ans 1} = \left[\begin{array}{ll} .1 = \left(\sin(75^\circ) = \frac{\sqrt{2}}{4} + \frac{\sqrt{2}\sqrt{3}}{4} \right) & .2 = \left(\cos\left(\frac{7\pi}{12}\right) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4} \right) \\ .3 = \left(\tan(15^\circ) = 2 - \sqrt{3} \right) & .4 = \left(\csc(255^\circ) = -\sqrt{2}\sqrt{3} + \sqrt{2} \right) \\ .5 = \left(\sec\left(-\frac{\pi}{12}\right) = -\sqrt{2} + \sqrt{2}\sqrt{3} \right) & .6 = \left(\cos((-285)^\circ) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4} \right) \\ .7 = \left(\sin\left(\frac{13\pi}{12}\right) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4} \right) & .8 = \left(\tan((-75)^\circ) = -2 - \sqrt{3} \right) \end{array} \right]$$

$$\begin{aligned}
 1. I &= \frac{\tan\left(\frac{17\pi}{36}\right) - \tan\left(\frac{5\pi}{36}\right)}{1 + \tan\left(\frac{17\pi}{36}\right)\tan\left(\frac{5\pi}{36}\right)} = \left(\tan\left(\frac{\pi}{3}\right) = \sqrt{3}\right) \\
 2. &= \left(2 \cos(15^\circ)^2 - 1 = \left(\cos(30^\circ) = \frac{\sqrt{3}}{2}\right)\right) \\
 3. &= (\sin(105^\circ) \cos(15^\circ) - \cos(105^\circ) \sin(15^\circ) = (\sin(90^\circ) = 1)) \\
 4. &= \frac{\tan\left(\frac{5\pi}{36}\right) + \tan\left(\frac{\pi}{36}\right)}{1 - \tan\left(\frac{5\pi}{36}\right)\tan\left(\frac{\pi}{36}\right)} = \left(\tan\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{3}\right) \\
 5. &= (\cos(70^\circ) \cos(20^\circ) - \sin(70^\circ) \sin(20^\circ) = (\cos(90^\circ) = 0)) \\
 6. &= \left(\cos\left(\frac{\pi}{8}\right)^2 - \sin\left(\frac{\pi}{8}\right)^2 = \left(\cos\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\
 7. &= \left(\sin\left(\frac{11\pi}{60}\right) \cos\left(\frac{\pi}{15}\right) + \cos\left(\frac{11\pi}{60}\right) \sin\left(\frac{\pi}{15}\right) = \left(\sin\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) \\
 8. &= \left(\frac{2 \tan\left(\frac{\pi}{12}\right)}{1 - \tan\left(\frac{\pi}{12}\right)^2} = \left(\tan\left(\frac{\pi}{6}\right) = \tan\left(\frac{\pi}{6}\right)\right)\right) \\
 9. &= \left(1 - 2 \sin(22.5^\circ)^2 = \left(\cos(45^\circ) = \frac{\sqrt{2}}{2}\right)\right) \\
 10. &= \left(2 \sin\left(\frac{\pi}{12}\right) \cos\left(\frac{\pi}{12}\right) = \left(\sin\left(\frac{\pi}{6}\right) = \frac{1}{2}\right)\right)
 \end{aligned}$$

$$\text{Ans3} = \begin{bmatrix} .1 = \left(\sin(\alpha) = \frac{\sqrt{7}}{4} \right) & .2 = \left(\cos(\beta) = -\frac{\sqrt{55}}{8} \right) \\ .3 = \left(\tan(\beta) = -\frac{3\sqrt{55}}{55} \right) & .4 = \left(\sin(\alpha + \beta) = -\frac{\sqrt{7}\sqrt{55}}{32} + \frac{9}{32} \right) \\ .5 = \left(\cos(\alpha - \beta) = -\frac{3\sqrt{55}}{32} + \frac{3\sqrt{7}}{32} \right) & .6 = \left(\tan(\beta - \alpha) = -\frac{\sqrt{55}}{9} - \frac{4\sqrt{7}}{9} \right) \\ .7 = \left(\sin(2\alpha) = \frac{3\sqrt{7}}{8} \right) & .8 = \left(\tan(2\beta) = -\frac{3\sqrt{55}}{23} \right) \end{bmatrix}, \quad \text{Ans4} = \begin{bmatrix} .1 = \left(\cos(\alpha) = \frac{2\sqrt{6}}{5} \right) & .2 = \left(\sin(\beta) = -\frac{\sqrt{35}}{6} \right) \\ .3 = \left(\tan(\beta) = \sqrt{35} \right) & .4 = \left(\sin(\alpha + \beta) = \frac{1}{30} - \frac{\sqrt{35}\sqrt{6}}{15} \right) \\ .5 = \left(\cos(\alpha - \beta) = -\frac{\sqrt{6}}{15} + \frac{\sqrt{35}}{30} \right) & .6 = \left(\tan(\beta - \alpha) = -\frac{25\sqrt{35}}{11} - \frac{72\sqrt{6}}{11} \right) \\ .7 = \left(\cos(2\alpha) = \frac{23}{25} \right) & .8 = \left(\tan(2\beta) = -\frac{\sqrt{35}}{17} \right) \end{bmatrix}$$

$$Ans5 = (\cos(9^\circ) = (\sqrt{0.9755} = 0.988)), \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\sin(20^\circ) = (\text{Sqrt}(0.1170) = 0.342)), \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\sin(6^\circ) = (\sqrt{0.0110} = 0.105)), \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

