ชื่อ-นามสกุล .....

เลขประจำตัว No. 2

แบบฝึกหัดเรื่อง ตรีโกณมิติ

1. จงหาค่าของ

1.1) $\sin\left(\frac{\pi}{12}\right)$ =

$\sin\frac{\pi}{12} = \sin\left(\frac{\pi}{3}-\frac{\pi}{4}\right)$

$= \sin\frac{\pi}{3}\cos\frac{\pi}{4} - \cos\frac{\pi}{3}\sin\frac{\pi}{4}$

$= \frac{\sqrt{3}}{2}\frac{\sqrt{2}}{2} - \frac{1}{2}\frac{\sqrt{2}}{2}$

$= \frac{\sqrt{6}-\sqrt{2}}{4}$

1.2) $\cos(105^\circ)$ =

$\cos(105^\circ) = \cos(60^\circ+45^\circ)$

$= \cos 60^\circ\cos 45^\circ - \sin 60^\circ \sin 45^\circ$

$= \frac{1}{2}\frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2}\frac{\sqrt{2}}{2}$

$= \frac{\sqrt{2}-\sqrt{6}}{4}$

1.3) $\tan(75^\circ)$ =

$\tan 75^\circ = \tan(45^\circ+30^\circ)$

$= \frac{\tan 45^\circ + \tan 30^\circ}{1-\tan 45^\circ\tan 30^\circ}$

$= \frac{1+\frac{1}{\sqrt{3}}}{1-1(\frac{1}{\sqrt{3}})}$ =

1.4) $\cos(-165^\circ)$ $= \cos(165^\circ)$

$= \cos(120^\circ+45^\circ)$

$= \cos(120^\circ)\cos(45^\circ) - \sin(120^\circ)\sin(45^\circ)$

$= \left(-\frac{1}{2}\right)\left(\frac{\sqrt{2}}{2}\right) - \left(\frac{\sqrt{3}}{2}\right)\left(\frac{\sqrt{2}}{2}\right)$

$= -\frac{\sqrt{2}}{4} - \frac{\sqrt{6}}{4}$

1.5) $\sin\left(\frac{23\pi}{12}\right)$ =

$\sin\frac{23\pi}{12} = \sin\left(\frac{5\pi}{3}+\frac{\pi}{4}\right)$

$= \sin\frac{5\pi}{3}\cos\frac{\pi}{4} + \cos\frac{5\pi}{3}\sin\frac{\pi}{4}$

$= -\frac{\sqrt{3}}{2}\frac{\sqrt{2}}{2} + \frac{1}{2}\frac{\sqrt{2}}{2}$

$= \frac{-\sqrt{6}+\sqrt{2}}{4}$

1.6) $\sec\left(-\frac{\pi}{12}\right)$ =

$\cos\frac{\pi}{12} = \cos\left(\frac{\pi}{3}-\frac{\pi}{4}\right)$

$= \cos\frac{\pi}{3}\cos\frac{\pi}{4} + \sin\frac{\pi}{3}\sin\frac{\pi}{4}$

$= \frac{1}{2}\frac{\sqrt{2}}{2} + \frac{\sqrt{3}}{2}\frac{\sqrt{2}}{2}$

$= \frac{\sqrt{2}+\sqrt{6}}{4}$

$\sec\left(-\frac{\pi}{12}\right) = \frac{1}{\cos\left(-\frac{\pi}{12}\right)}$

$= \frac{1}{\cos\left(\frac{\pi}{12}\right)}$

$= \frac{4}{\sqrt{2}+\sqrt{6}}$

$= \sqrt{6}-\sqrt{2}$

1.7) $\csc(195^\circ)$ =

$= \sin(150^\circ+45^\circ)$

$= \sin 150^\circ\cos 45^\circ + \cos 150^\circ\sin 45^\circ$

$= \frac{1}{2}\frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2}\frac{\sqrt{2}}{2}$

$= \frac{\sqrt{2}}{4} - \frac{\sqrt{3}\sqrt{2}}{4}$

$\csc 195^\circ$

$= \frac{4}{\sqrt{2}-\sqrt{6}}$

$= -\sqrt{2}-\sqrt{6}$

1.8) $\cot(165^\circ)$ =

$\tan(165^\circ) = \tan(120^\circ+45^\circ)$

$= \frac{\tan 120^\circ+\tan 45^\circ}{1-\tan 120^\circ\tan 45^\circ}$

$= \frac{-\sqrt{3}+1}{1-(-\sqrt{3})(1)}$

$= \frac{1-\sqrt{3}}{1+\sqrt{3}}$

$\cot 165^\circ$

$= \frac{1+\sqrt{3}}{1-\sqrt{3}}$

$= -2-\sqrt{3}$

2. จงหาค่าของ

2.1) $2\sin(15^\circ)\cos(15^\circ) =$

$= \sin(2\cdot 15^\circ)$

$= \sin(30^\circ)$

$= \frac{1}{2}$

2.2) $\sin(35^\circ)\cos(5^\circ) - \cos(35^\circ)\sin(5^\circ) =$

$= \sin(35^\circ - 5^\circ)$

$= \sin 30^\circ$

$= \frac{1}{2}$

2.3) $\sin(10^\circ)\cos(35^\circ) + \cos(10^\circ)\sin(35^\circ) =$

$= \sin(10^\circ + 35^\circ)$

$= \sin 45^\circ$

$= \frac{\sqrt{2}}{2}$

2.4) $\cos(22.5)^2 - \sin(22.5)^2 =$

$= \cos(2\cdot 22.5^\circ)$

$= \cos 45^\circ$

$= \frac{\sqrt{2}}{2}$

2.5) $2\cos\left(\frac{\pi}{12}\right)^2 - 1 =$

$= \cos\left(2\cdot\frac{\pi}{12}\right)$

$= \cos\left(\frac{\pi}{6}\right)$

$= \frac{\sqrt{3}}{2}$

2.6) $\dfrac{\tan\left(\frac{7\pi}{36}\right) + \tan\left(\frac{5\pi}{36}\right)}{1 - \tan\left(\frac{7\pi}{36}\right)\tan\left(\frac{5\pi}{36}\right)} =$

$= \tan\left(\frac{7\pi}{36} + \frac{5\pi}{36}\right)$

$= \tan\frac{\pi}{3}$

$= \sqrt{3}$

2.7) $\dfrac{\tan\left(\frac{2\pi}{5}\right) - \tan\left(\frac{\pi}{15}\right)}{1 + \tan\left(\frac{2\pi}{5}\right)\tan\left(\frac{\pi}{15}\right)} =$

$= \tan\left(\frac{2\pi}{5} - \frac{\pi}{15}\right)$

$= \tan\frac{\pi}{3}$

$= \sqrt{3}$

2.8) $\dfrac{2\tan(22.5^\circ)}{1 - \tan(22.5)^2} =$

$= \tan(2\cdot 22.5^\circ)$

$= \tan 45^\circ$

$= 1$

2.9) $1 - 2\sin\left(\frac{\pi}{8}\right)^2 =$

$= \cos\left(2\cdot\frac{\pi}{8}\right)$

$= \cos\frac{\pi}{6}$

$= \frac{\sqrt{2}}{2}$

2.10) $\cos\left(\frac{\pi}{18}\right)\cos\left(\frac{\pi}{9}\right) - \sin\left(\frac{\pi}{18}\right)\sin\left(\frac{\pi}{9}\right)$

$= \cos\left(\frac{\pi}{18} + \frac{\pi}{9}\right)$

$= \cos\frac{\pi}{6}$

$= \frac{\sqrt{3}}{2}$

3. กำหนด $A =$ 0 , $B =$ $\frac{\pi}{2}$, $C =$ π , $D =$ $\frac{3\pi}{2}$

ถ้า $Con1 =$ $\sin(\alpha) = \frac{1}{2}$, $A \le \alpha \le B$ และ $Con2 =$ $\cos(\beta) = -\frac{5}{6}$, $C \le \beta \le D$ จงหา

Q1 Q3

3.1) $\cos(\alpha)$ =

$= \sqrt{1 - \sin^2(\alpha)}$

$= \sqrt{1 - \frac{1}{4}}$

$= \frac{\sqrt{3}}{2}$

3.2) $\sin(\beta)$ =

$= -\sqrt{1 - \cos^2(\beta)}$

$= -\sqrt{1 - \frac{25}{36}}$

$= -\sqrt{\frac{11}{36}}$

$= -\frac{\sqrt{11}}{6}$

3.3) $\tan(\beta)$ =

$= \frac{\sin(\beta)}{\cos(\beta)}$

$= \frac{-\frac{\sqrt{11}}{6}}{-\frac{5}{6}}$

$= \frac{\sqrt{11}}{5}$

3.4) $\sin(\beta - \alpha)$ =

$= \sin\beta\cos\alpha - \cos\beta\sin\alpha$

$= -\frac{\sqrt{11}}{6}\frac{\sqrt{3}}{2} - \left(-\frac{5}{6}\right)\left(\frac{1}{2}\right)$

$= \frac{-\sqrt{11}\sqrt{3} + 5}{12}$

3.5) $\cos(\alpha + \beta)$ =

$= \cos\alpha\cos\beta - \sin\alpha\sin\beta$

$= \left(\frac{\sqrt{3}}{2}\right)\left(-\frac{5}{6}\right) - \left(\frac{1}{2}\right)\left(-\frac{\sqrt{11}}{6}\right)$

$= \frac{-5\sqrt{3} + \sqrt{11}}{12}$

3.6) $\tan(\alpha - \beta)$ =

$= \frac{\tan\alpha - \tan\beta}{1 + \tan\alpha\tan\beta}$

$= \frac{\frac{\sqrt{3}}{3} - \frac{\sqrt{11}}{5}}{1 + \frac{\sqrt{3}}{3}\frac{\sqrt{11}}{5}}$

$= \frac{5\sqrt{3} - 3\sqrt{11}}{15} \cdot \frac{15}{15 + \sqrt{3}\sqrt{11}}$

$= \frac{5\sqrt{3} - 3\sqrt{11}}{15 + \sqrt{3}\sqrt{11}}$

3.7) $\cos(2\alpha)$ =

$= 2\cos^2\alpha - 1$

$= 2 \cdot \frac{3}{4} - 1$

$= \frac{3}{2} - 1$

$= \frac{1}{2}$

3.8) $\tan(2\beta)$ =

$= \frac{2\tan\beta}{1 - \tan^2\beta}$

$= \frac{2 \cdot \frac{\sqrt{11}}{5}}{1 - \frac{11}{25}}$

$= \frac{\frac{2\sqrt{11}}{5}}{14/25}$

$= \frac{2\sqrt{11}}{5} \cdot \frac{25}{14}$

$= \frac{5\sqrt{11}}{7}$

4. กำหนด $A =$ $\frac{3\pi}{2}$, $B =$ 2π , $C =$ $\frac{\pi}{2}$, $D =$ π

ถ้า $Con1 =$ $\sin(\alpha) = -\frac{4}{5}$, $A \le \alpha \le B$ และ $Con2 =$ $\cos(\beta) = -\frac{1}{4}$, $C \le \beta \le D$ จงหา

Q4 Q2

4.1) $\cos(\alpha)$ =

$= -\sqrt{1-\sin^2\alpha}$

$= \sqrt{1-\frac{16}{25}}$

$= \frac{3}{5}$

4.2) $\sin(\beta)$ =

$= \sqrt{1-\cos^2\beta}$

$= \sqrt{1-\frac{1}{16}}$

$= \frac{\sqrt{15}}{4}$

4.3) $\tan(\beta)$ =

$= \frac{\frac{\sqrt{15}}{4}}{-\frac{1}{4}}$

$= -\sqrt{15}$

4.4) $\sin(\alpha-\beta)$ =

$= \sin\alpha\cos\beta - \cos\alpha\sin\beta$

$= \left(-\frac{4}{5}\right)\left(-\frac{1}{4}\right) - \left(\frac{3}{5}\right)\left(\frac{\sqrt{15}}{4}\right)$

$= \frac{1}{5} - \frac{3\sqrt{15}}{20}$

4.5) $\cos(\beta-\alpha)$ =

$= \cos\beta\cos\alpha + \sin\beta\sin\alpha$

$= \left(-\frac{1}{4}\right)\left(\frac{3}{5}\right) + \left(\frac{\sqrt{15}}{4}\right)\left(-\frac{4}{5}\right)$

$= -\frac{3}{20} - \frac{\sqrt{15}}{5}$

4.6) $\tan(\alpha+\beta)$ =

$= \frac{\tan\alpha + \tan\beta}{1-\tan\alpha\tan\beta}$

$= \frac{-\frac{4}{3} - \sqrt{15}}{1-\left(-\frac{4}{3}\right)(-\sqrt{15})}$

$= \frac{-4-3\sqrt{15}}{3} \cdot \frac{3}{3-4\sqrt{15}}$

$= \frac{-4-3\sqrt{15}}{3-4\sqrt{15}}$

4.7) $\sin(2\beta)$ =

$= 2\sin\beta\cos\beta$

$= 2\left(\frac{\sqrt{15}}{4}\right)\left(-\frac{1}{4}\right)$

$= -\frac{\sqrt{15}}{8}$

4.8) $\tan(2\alpha)$ =

$= \frac{2\tan\alpha}{1-\tan^2\alpha}$

$= \frac{2\left(-\frac{4}{3}\right)}{1-\frac{16}{9}}$

$= -\frac{8}{3} \cdot \left(-\frac{9}{7}\right)$

$= \frac{72}{21} = \frac{24}{7}$

5. ถ้า $Cond =$ $\cos(32^\circ) = 0.848$

จงหา $Question =$ $\cos(16^\circ)$

$= \sqrt{\frac{1+\cos 32^\circ}{2}}$

$= \sqrt{\frac{1+0.848}{2}}$

$= \sqrt{1.848/2}$

$= \sqrt{0.924}$

$= 0.961$

6. ถ้า $Cond =$ $\sin(54^\circ) = 0.809$

จงหา $Question =$ $\sin(27^\circ)$

$\cos 54^\circ = \sqrt{1-0.654} = 0.588$

$\sin 27^\circ = \sqrt{\frac{1-\cos 54^\circ}{2}}$

$= \sqrt{(1-0.588)/2}$

$= \sqrt{0.412/2}$

$= \sqrt{0.206}$

$= 0.454$

TrigonometryExercise4 for No.2

$$No1 = \begin{bmatrix} .1 = \mathrm{Sin}\left(\frac{\pi}{12}\right) & .2 = \mathrm{Cos}(105^o) \\ .3 = \mathrm{Tan}(75^o) & .4 = \mathrm{Cos}((-165)^o) \\ .5 = \mathrm{Sin}\left(\frac{23\pi}{12}\right) & .6 = \mathrm{Sec}\left(-\frac{\pi}{12}\right) \\ .7 = \mathrm{Csc}(195^o) & .8 = \mathrm{Cot}(165^o) \end{bmatrix}, No2 = \begin{bmatrix} .1 = 2\,\mathrm{Sin}(15^o)\,\mathrm{Cos}(15^o) & .2 = \mathrm{Sin}(35^o)\,\mathrm{Cos}(5^o) - \mathrm{Cos}(35^o)\,\mathrm{Sin}(5^o) \\ .3 = \mathrm{Sin}(10^o)\,\mathrm{Cos}(35^o) + \mathrm{Cos}(10^o)\,\mathrm{Sin}(35^o) & .4 = \mathrm{Cos}(22.5^o)^2 - \mathrm{Sin}(22.5^o)^2 \\ .5 = 2\,\mathrm{Cos}\left(\frac{\pi}{12}\right)^2 - 1 & .6 = \dfrac{\mathrm{Tan}\left(\frac{7\pi}{36}\right) + \mathrm{Tan}\left(\frac{5\pi}{36}\right)}{1 - \mathrm{Tan}\left(\frac{7\pi}{36}\right)\mathrm{Tan}\left(\frac{5\pi}{36}\right)} \\ .7 = \dfrac{\mathrm{Tan}\left(\frac{2\pi}{5}\right) - \mathrm{Tan}\left(\frac{\pi}{15}\right)}{1 + \mathrm{Tan}\left(\frac{2\pi}{5}\right)\mathrm{Tan}\left(\frac{\pi}{15}\right)} & .8 = \dfrac{2\,\mathrm{Tan}(22.5^o)}{1 - \mathrm{Tan}(22.5^o)^2} \\ .9 = 1 - 2\,\mathrm{Sin}\left(\frac{\pi}{8}\right)^2 & .10 = \mathrm{Cos}\left(\frac{\pi}{18}\right)\mathrm{Cos}\left(\frac{\pi}{9}\right) - \mathrm{Sin}\left(\frac{\pi}{18}\right)\mathrm{Sin}\left(\frac{\pi}{9}\right) \end{bmatrix}, \; , \begin{bmatrix} \frac{:)}{:(} \\ \begin{bmatrix}\begin{bmatrix} P \\ V \\ S \\ S \end{bmatrix}\end{bmatrix} \\ \& \\ \begin{bmatrix}\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\end{bmatrix} \\ \frac{:)}{:(} \\ \frac{:)}{:(} \end{bmatrix}$$

$$No3 = \begin{bmatrix} \left[A = 0, B = \frac{\pi}{2}, C = \pi, D = \frac{3\pi}{2}\right] \\ \left[Cond1 = \left(\mathrm{Sin}(\alpha) = \frac{1}{2}\right), Cond2 = \left(\mathrm{Cos}(\beta) = \frac{-5}{6}\right)\right] \\ \left[\begin{bmatrix} .1 = \mathrm{Cos}(\alpha) & .2 = \mathrm{Sin}(\beta) \\ .3 = \mathrm{Tan}(\beta) & .4 = \mathrm{Sin}(\beta - \alpha) \\ .5 = \mathrm{Cos}(\alpha + \beta) & .6 = \mathrm{Tan}(\alpha - \beta) \\ .7 = \mathrm{Cos}(2\alpha) & .8 = \mathrm{Tan}(2\beta) \end{bmatrix}\right] \end{bmatrix}, \; No4 = \begin{bmatrix} \left[A = \frac{3\pi}{2}, B = 2\pi, C = \frac{\pi}{2}, D = \pi\right] \\ \left[Cond1 = \left(\mathrm{Sin}(\alpha) = \frac{-4}{5}\right), Cond2 = \left(\mathrm{Cos}(\beta) = \frac{-1}{4}\right)\right] \\ \left[\begin{bmatrix} .1 = \mathrm{Cos}(\alpha) & .2 = \mathrm{Sin}(\beta) \\ .3 = \mathrm{Tan}(\beta) & .4 = \mathrm{Sin}(\alpha - \beta) \\ .5 = \mathrm{Cos}(\beta - \alpha) & .6 = \mathrm{Tan}(\alpha + \beta) \\ .7 = \mathrm{Sin}(2\beta) & .8 = \mathrm{Tan}(2\alpha) \end{bmatrix}\right] \end{bmatrix}$$

$$No5 = [Cond = (\mathrm{Cos}(32^o) = 0.848), Question = \mathrm{Sin}(16^o)], \; , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$No6 = [Cond = (\mathrm{Cos}(54^o) = 0.588), Question = \mathrm{Cos}(27^o)], \; , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

TrigonometryExercise4 Answers for No.2

$$Ans1 = \begin{bmatrix} .1 = \left(\sin\left(\frac{\pi}{12}\right) = \frac{\sqrt{2}\sqrt{3}}{4} - \frac{\sqrt{2}}{4}\right) & .2 = \left(\cos(105^{o}) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .3 = (\tan(75^{o}) = 2 + \sqrt{3}) & .4 = \left(\cos((-165)^{o}) = -\frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) \\ .5 = \left(\sin\left(\frac{23\pi}{12}\right) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}\sqrt{3}}{4}\right) & .6 = \left(\sec\left(-\frac{\pi}{12}\right) = -\sqrt{2} + \sqrt{2}\sqrt{3}\right) \\ .7 = (\csc(195^{o}) = -\sqrt{2}\sqrt{3} - \sqrt{2}) & .8 = (\cot(165^{o}) = -2 - \sqrt{3}) \end{bmatrix}, \; , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans2 = \begin{bmatrix} .1 = \left(2\sin(15^{o})\cos(15^{o}) = \left(\sin(30^{o}) = \frac{1}{2}\right)\right) & .2 = \left(\sin(35^{o})\cos(5^{o}) - \cos(35^{o})\sin(5^{o}) = \left(\sin(30^{o}) = \frac{1}{2}\right)\right) \\ .3 = \left(\sin(10^{o})\cos(35^{o}) + \cos(10^{o})\sin(35^{o}) = \left(\sin(45^{o}) = \frac{\sqrt{2}}{2}\right)\right) & .4 = \left(\cos(22.5^{o})^2 - \sin(22.5^{o})^2 = \left(\cos(45^{o}) = \frac{\sqrt{2}}{2}\right)\right) \\ .5 = \left(2\cos\left(\frac{\pi}{12}\right)^2 - 1 = \left(\cos\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) & .6 = \left(\frac{\tan\left(\frac{7\pi}{36}\right) + \tan\left(\frac{5\pi}{36}\right)}{1 - \tan\left(\frac{7\pi}{36}\right)\tan\left(\frac{5\pi}{36}\right)} = \left(\tan\left(\frac{\pi}{3}\right) = \sqrt{3}\right)\right) \\ .7 = \left(\frac{\tan\left(\frac{2\pi}{5}\right) - \tan\left(\frac{\pi}{15}\right)}{1 + \tan\left(\frac{2\pi}{5}\right)\tan\left(\frac{\pi}{15}\right)} = \left(\tan\left(\frac{\pi}{3}\right) = \sqrt{3}\right)\right) & .8 = \left(\frac{2\tan(22.5^{o})}{1 - \tan(22.5^{o})^2} = (\tan(45^{o}) = 1)\right) \\ .9 = \left(1 - 2\sin\left(\frac{\pi}{8}\right)^2 = \left(\cos\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}\right)\right) & .10 = \left(\cos\left(\frac{\pi}{18}\right)\cos\left(\frac{\pi}{9}\right) - \sin\left(\frac{\pi}{18}\right)\sin\left(\frac{\pi}{9}\right) = \left(\cos\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}\right)\right) \end{bmatrix}, \; , \begin{bmatrix} :) \\ :(\\ :) \\ :(\\ \begin{bmatrix}\begin{bmatrix} M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \end{bmatrix}\end{bmatrix} \\ :) \\ :(\\ :) \\ :(\\ :) \\ :(\end{bmatrix}$$

$$Ans3 = \begin{bmatrix} .1 = \left(\cos(\alpha) = \frac{\sqrt{3}}{2}\right) & .2 = \left(\sin(\beta) = -\frac{\sqrt{11}}{6}\right) \\ .3 = \left(\tan(\beta) = \frac{\sqrt{11}}{5}\right) & .4 = \left(\sin(\beta - \alpha) = -\frac{\sqrt{3}\sqrt{11}}{12} + \frac{5}{12}\right) \\ .5 = \left(\cos(\alpha + \beta) = -\frac{5\sqrt{3}}{12} + \frac{\sqrt{11}}{12}\right) & .6 = \left(\tan(\alpha - \beta) = -\frac{5\sqrt{11}}{16} + \frac{9\sqrt{3}}{16}\right) \\ .7 = \left(\cos(2\alpha) = \frac{1}{2}\right) & .8 = \left(\tan(2\beta) = \frac{5\sqrt{11}}{7}\right) \end{bmatrix}, \; , \; Ans4 = \begin{bmatrix} .1 = \left(\cos(\alpha) = \frac{3}{5}\right) & .2 = \left(\sin(\beta) = \frac{\sqrt{15}}{4}\right) \\ .3 = (\tan(\beta) = -\sqrt{15}) & .4 = \left(\sin(\alpha - \beta) = \frac{1}{5} - \frac{3\sqrt{15}}{20}\right) \\ .5 = \left(\cos(\beta - \alpha) = -\frac{3}{20} - \frac{\sqrt{15}}{5}\right) & .6 = \left(\tan(\alpha + \beta) = \frac{64}{77} + \frac{25\sqrt{15}}{231}\right) \\ .7 = \left(\sin(2\beta) = -\frac{\sqrt{15}}{8}\right) & .8 = \left(\tan(2\alpha) = \frac{24}{7}\right) \end{bmatrix}, \; , \begin{bmatrix} :) \\ :(\\ M \\ a \\ t \\ h \\ @ \\ M \\ U \\ T \\ :) \\ :(\end{bmatrix}$$

$$Ans5 = (\sin(16^{o}) = (\mathrm{Sqrt}(0.0760) = 0.276)), \; , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

$$Ans6 = (\cos(27^{o}) = (\mathrm{Sqrt}(0.7940) = 0.891)), \; , \begin{bmatrix} M \\ U \\ T \end{bmatrix}$$

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