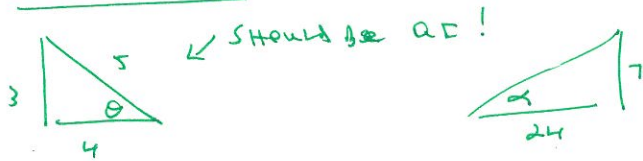


HW # 5.3-1



① $\sin 2\theta = \sqrt{\frac{24}{25}}$ ③ $\tan 2\theta = \sqrt{\frac{24}{7}}$ ⑤ $\cos 2\alpha = \sqrt{\frac{527}{625}}$

⑦ $\sin \theta = \frac{15}{17}$, Q II \rightarrow Find $\sin 2\theta = \sqrt{\frac{-240}{289}}$

⑨ $\cos \theta = \frac{24}{25}$, Q IV Find $\cos 2\theta = \sqrt{\frac{527}{625}}$

⑪ $\cot \theta = 2$, Q II Q III Find $\tan 2\theta = \sqrt{\frac{4}{3}}$

WRITE AS A DOUBLE ANGLE, THEN EVALUATE

⑮ $2 \sin 15^\circ \cos 15^\circ = \sqrt{\sin 30^\circ = \frac{1}{2}}$

⑰ $\cos^2 75^\circ - \sin^2 75^\circ = \sqrt{\cos 150^\circ = -\frac{\sqrt{3}}{2}}$

⑨ $2 \cos^2 \frac{\pi}{8} - 1 = \sqrt{\cos \frac{\pi}{4} = \frac{\sqrt{2}}{2}}$

VERIFY

⑮ $(\sin \theta + \cos \theta)^2 = 1 + \sin 2\theta$
 $\sin^2 \theta + 2 \sin \theta \cos \theta + \cos^2 \theta$
 $1 + 2 \sin \theta \cos \theta$
 $1 + \sin 2\theta$ \rightarrow I

⑰ $\sin^2 x + \cos 2x = \cos^2 x$
 $\sin^2 x + \cos^2 x - \sin^2 x$
 $\cos^2 x$ \rightarrow I

⑲ $\cot x = \frac{\sin 2x}{1 - \cos 2x}$
 $\frac{\cos x}{\sin x} = \frac{2 \sin x \cos x}{1 - \cos^2 x + \sin^2 x}$
 $\frac{2 \sin x \cos x}{\sin^2 x + \cos^2 x}$
 $\frac{2 \sin x \cos x}{2 \sin^2 x}$
 $\frac{\cos x}{\sin x}$ \rightarrow I

⑳ $\sin 2t - \tan t = \tan t \cos 2t$
 $2 \sin t \cos t - \tan t$
 $2 \sin t \cos t - \frac{\sin t}{\cos t}$
 $\frac{2 \sin t \cos^2 t - \sin t}{\cos t}$
 $\frac{\sin t (2 \cos^2 t - 1)}{\cos t}$
 $\frac{\sin t}{\cos t} \cdot \cos 2t$
 $\tan t \cos 2t$ \rightarrow I