12. tan 1695° $= \tan 255 = \tan(210+45)$

$$= \frac{\tan 210 + \tan 45}{1 - \tan 210 \tan 45} = \frac{\frac{\sqrt{3}}{3} + \frac{3}{3}}{\frac{3}{3} - \frac{\sqrt{3}}{3}}$$

$$= \frac{\frac{\sqrt{3}+3}{3}}{\frac{3-\sqrt{3}}{3}} = \frac{\sqrt{3}+3}{\cancel{3}} \cdot \frac{\cancel{3}}{3-\sqrt{3}}$$

$$= \frac{\sqrt{3}+3}{3-\sqrt{3}} \cdot \frac{3+\sqrt{3}}{3+\sqrt{3}} = \frac{3\sqrt{3} + 3 + 9 + 3\sqrt{3}}{9-3}$$

$$= \frac{12 + 6\sqrt{3}}{6} = 2+\sqrt{3}$$

15. Verify the following identity.

$$\cos(A+B) = \frac{1-\tan A \tan B}{\sec A \sec B}$$

$$\frac{1}{\sec A \sec B} - \frac{\tan A \tan B}{\sec A \sec B}$$

$$\cos A \cos B - \sin A \sin B = \frac{1 - \frac{\sin A \sin B}{\cos A \cos B}}{\frac{1}{\cos A \cos B}}$$

$$= \left(1 - \frac{\sin A \sin B}{\cos A \cos B}\right) \cdot \frac{\cos A \cos B}{1}$$

$$\cos A \cos B - \sin A \sin B = \cos A \cos B - \sin A \sin B$$

9 $\csc x = \sin x \tan x + \cos x,$

$$\frac{1}{\sin x} = \sin x \frac{\sin x}{\cos x} + \frac{\cos x}{1}\left(\frac{\cos x}{\cos x}\right)$$

$$\frac{1}{\sin x} = \frac{\sin^2 x}{\cos x} + \frac{\cos^2 x}{\cos x}$$

$$\frac{1}{\sin x} = \frac{\sin^2 x + \cos^2 x}{\cos x}$$

$$\cos x \frac{1}{\sin x} = \frac{1}{\cos x} \cos x$$

$$\frac{\cos x}{\sin x} = 1$$

$$\cot x = 1$$

6. $\cos B \cot B = \csc B - \sin B$

$$\cos B \frac{\cos B}{\sin B} = \frac{1}{\sin B} - \frac{\sin B}{1} \cdot \frac{\sin B}{\sin B}$$

$$\frac{\cos^2 B}{\sin B} = \frac{1 - \sin^2 B}{\sin B}$$

$$\frac{\cos^2 B}{\sin B} = \frac{\cos^2 B}{\sin B}$$

QUIZ

MONDAY