

Name _____

Please print your name as it appears on the class roster.

To receive full credit on each problem, you must write mathematical steps to arrive at your answer. Please explain how you got your answers.

Use the information given about the angle θ , $0 \leq \theta \leq 2\pi$, to find the exact value of the indicated trigonometric function.

1) $\csc \theta = \frac{13}{5}$, $\frac{\pi}{2} < \theta < \pi$ Find $\cos(2\theta)$.

Solve the equation on the interval $0 \leq \theta < 2\pi$.

$$2) 2 \cos^2 \theta - 3 \cos \theta + 1 = 0$$

$$3) 2 \cos(2\theta) = \sqrt{3}$$

Use the Half-angle Formulas to find the exact value of the trigonometric function.

$$4) \sin \frac{5\pi}{12}$$

Find the exact value of the expression.

$$5) \frac{\tan 40^\circ + \tan 110^\circ}{1 - \tan 40^\circ \tan 110^\circ}$$

$$6) \sin\left[2 \cos^{-1}\left(-\frac{3}{5}\right)\right]$$

$$7) \sin(\tan^{-1} 2)$$

$$8) \cos\left(\sin^{-1}\frac{1}{3} - \tan^{-1}\frac{1}{2}\right)$$

Find the exact value under the given conditions.

$$9) \sin \alpha = \frac{15}{17}, \quad 0 < \alpha < \frac{\pi}{2}; \quad \cos \beta = \frac{4}{5}, \quad 0 < \beta < \frac{\pi}{2}$$

Find $\cos(\alpha + \beta)$.

Simplify the trigonometric expression by following the indicated direction.

10) Multiply and simplify: $\frac{(\tan \theta + 1)(\tan \theta + 1) - \sec^2 \theta}{\tan \theta}$