

PreCalculus
WS: 5.4 – 5.5 Review

Name _____
Date _____ Block _____

Find the exact value.

1.) $\cos 25^\circ \cos 20^\circ - \sin 25^\circ \sin 20^\circ$

2.) $\sin \frac{\pi}{16} \cos \frac{3\pi}{16} + \cos \frac{\pi}{16} \sin \frac{3\pi}{16}$

Find the exact value of the sine, cosine, and tangent of the angle by using the sum and difference formulas.

3.) $\frac{5\pi}{12}$ Hint: $\frac{5\pi}{12} = \frac{\pi}{6} + \frac{\pi}{4}$

Find the exact value of the sine, cosine, and tangent of the angle by using the half angle formulas.

4.) $\frac{5\pi}{12}$ Hint: $\left(\frac{5\pi}{6}\right) = \frac{5\pi}{12}$

Find the exact value of the trigonometric function given that $\sin u = -\frac{7}{25}$ and $\cos v = -\frac{4}{5}$. (Both are in Quadrant III.)

5.) $\cos(u + v)$

6.) $\cos(u - v)$

Write the trigonometric expression as an algebraic expression.

7.) $\cos(\arccos x - \arctan x)$

Simplify the expression.

8.) $\sin\left(\frac{3\pi}{2} + \theta\right)$

9.) $\tan(\pi + \theta)$

Find all solutions of the equation in the interval $[0, 2\pi)$.

$$10.) \sin\left(x + \frac{\pi}{6}\right) - \sin\left(x - \frac{\pi}{6}\right) = \frac{1}{2}$$

$$11.) \tan(x + \pi) - \cos\left(x - \frac{\pi}{2}\right) = 0$$

$$12.) \sin 2x - \sin x = 0$$

Use a double-angle formula to rewrite the expression.

13.) $6 \sin x \cos x$

14.) $4 - 8 \sin^2 x$

Using double-angle formulas, find the exact values of $\sin 2u$, $\cos 2u$, and $\tan 2u$.

15.) $\cot u = -4$; $\frac{3\pi}{2} < u < 2\pi$

Find all solutions of the equation in the interval $[0, 2\pi)$.

16.) $\sin \frac{x}{2} + \cos x = 0$

Use the product-to-sum formulas to write each product as a sum or difference.

17.) $\cos 4\theta \sin 6\theta$

Use the sum-to-product formulas to write each sum or difference as a product.

18.) $\sin(x + y) - \sin(x - y)$

Verify the identity.

19.) $\csc 2\theta = \frac{\csc \theta}{2 \cos \theta}$

$$20.) \cos^4 \theta - \sin^4 \theta = \cos 2\theta$$

$$21.) (\sin x + \cos x)^2 = 1 + \sin 2x$$

Find all solutions of the equation in the interval $[0, 2\pi)$.

$$22.) \cos 4x + \cos 6x = 0$$

$$23.) \sin x + \sin 3x = 0$$