Name: _____ Date: _____ Pd.:_____

Pre-Calculus **5.3-5.4 Review**

Use a sum or difference identity to find the exact value for each expression.

1) $\sin 195^\circ$

2) $\cos\frac{11\pi}{12}$

3) $\tan\frac{11\pi}{12}$

Use a half angle identity to find the exact value for each expression.

4) $\sin\frac{5\pi}{8}$

5) $\cos\frac{5\pi}{8}$

6) $\tan\frac{5\pi}{8}$

Write the expression as the sine, cosine, or tangent of an angle.

7) $\cos 94^\circ \cos 18^\circ + \sin 94^\circ \sin 18^\circ$

8) $\sin\frac{\pi}{3}\cos\frac{\pi}{7} - \sin\frac{\pi}{7}\cos\frac{\pi}{3}$

Find each of the following when $\sin x = \frac{2}{3}$ and $\sin y = \frac{4}{5}$.

9) $\sin 2x$

10) $\cos\frac{x}{2}$

11) $\sin(x + y)$

12) $\cos(x + y)$

Prove each identity.

13) $\cos\left(x-\frac{\pi}{2}\right)=\sin x$

14) $\sin(\pi - x) = \sin x$

15) $\cos(x-y)+\cos(x+y)=2\cos x\cos y$

16) $\sin 4x+\sin 2x=2\sin 3x\cos x$

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

18) $1+\cos 10x=2\cos^2 5x$

19) $\sin 4x=4\sin x\cos x(1-2\sin^2 x)$

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

Solve each equation on the interval $[0, 2\pi)$.

21) $\cos 2x + \sin x = 1$

22) $1 + \cos^2 x = 2\cos^2 \frac{x}{2}$

23) $\cos^2 x = \sin^2 \frac{x}{2}$

24) $\sin 2x = \sin x$

25) $2\cos^2 x + \cos x = \cos 2x$

26) $\sin \frac{x}{2} = -1$