Trig Review 7.1-7.4

Use the sum and difference identities (sin, cos, tan)

Use the double angle and half angle identities (sin, cos, tan)

Quiz 7.3-7.4 Wed..
Test Thurs. MCT 7.1-7.4
You will have (my) parking lot

(8) $1 + \sin 2x = (\sin x + \cos x)^2$

$\downarrow$

$1 + 2\sin x \cos x = \sin^2 x + 2\sin x \cos x + \cos^2 x$

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

$\sin x + \cos x$
$\sin x + \cos x$

(10) $V_0 = 100 ft/s$ θ

$200 ft$

$r = \frac{1}{32}(V_0)^2 \sin 2\theta$

$200 = \frac{1}{32}(100)^2 \sin 2\theta$

$200 = \frac{1}{32} \cdot 100 \cdot 100 (\sin 2\theta)$

$\frac{200}{312.5} = \frac{312.5}{312.5} \sin 2\theta$

$0.64 = \sin 2\theta$

$\frac{39.8^\circ}{2} = \frac{2\theta}{2}$

$19.9^\circ = \theta$

Use the given information to determine the trigonometric value. In each case, $0° < \theta < 90°$.

11. If $\sin \theta = \frac{1}{2}$, find $\csc \theta$.

12. If $\tan \theta = 4$, find $\sec \theta$.

13. If $\csc \theta = \frac{5}{3}$, find $\cos \theta$.

Verify that each equation is an identity.

16. $\cos^2 x + \tan^2 x \cos^2 x = 1$

17. $\frac{1 - \cos\theta}{1 + \cos\theta} = (\csc\theta - \cot\theta)^2$

$$\frac{1-\cos\theta}{1+\cos\theta} = \left(\frac{1}{\sin\theta} - \frac{\cos\theta}{\sin\theta}\right)^2$$

$$= \frac{(1-\cos\theta)^2}{\sin^2\theta}$$

$$\frac{1-\cos\theta}{1+\cos\theta} = \frac{(1-\cos\theta)^2}{1-\cos^2\theta}$$

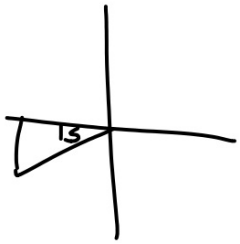
$$\frac{(1-\cos\theta)(1-\cos\theta)}{(1-\cos\theta)(1+\cos\theta)}$$

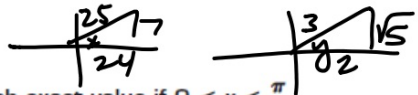
$$= \frac{1-\cos\theta}{1+\cos\theta}$$

Use sum or difference identities to find the exact value of each trigonometric function.

20. $\cos 195°$ = −

21. $\cos 15°$





Find each exact value if $0 < x < \frac{\pi}{2}$ and $0 < y < \frac{\pi}{2}$.

24. $\cos(x - y)$ if $\sin x = \frac{7}{25}$ and $\cos y = \frac{2}{3}$

$\cos(x-y) = \cos x \cos y + \sin x \sin y$

$= \frac{24}{25} \cdot \frac{2}{3} + \frac{7}{25} \cdot \frac{\sqrt{5}}{3}$

$= \frac{48 + 7\sqrt{5}}{75}$

If θ is an angle in the first quadrant and $\cos\theta = \frac{3}{5}$, find the exact value of each function.

30. $\sin 2\theta$

31. $\cos 2\theta$

REVIEW EXERCISES

Use a half-angle identity to find the exact value of each function.

26. $\cos 75^\circ$ **27.** $\sin \frac{7\pi}{8}$