

# Algebra II/ Trig – Quiz Review HW

Sec. 13.1- 13.3, 14.1- Trigonometric Functions

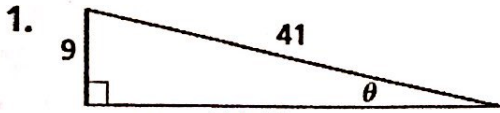
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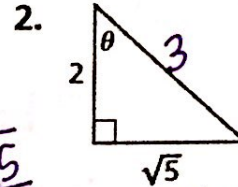
## 13-1 Right-Angle Trigonometry

Find the values of the six trigonometric functions for  $\theta$ .



$$\begin{aligned} \sin \theta &= \frac{9}{41} \\ \cos \theta &= \frac{40}{41} \\ \tan \theta &= \frac{9}{40} \end{aligned}$$

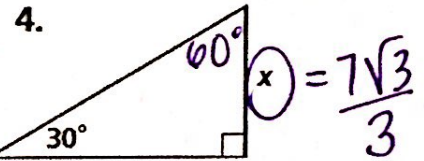
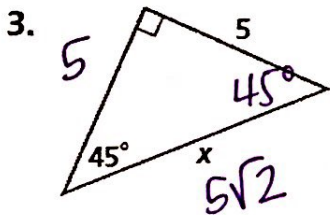
$$\begin{aligned} \csc \theta &= \frac{41}{9} \\ \sec \theta &= \frac{41}{40} \\ \cot \theta &= \frac{40}{9} \end{aligned}$$



$$\begin{aligned} \sin \theta &= \frac{\sqrt{5}}{3} \\ \cos \theta &= \frac{2}{3} \\ \tan \theta &= \frac{\sqrt{5}}{2} \end{aligned}$$

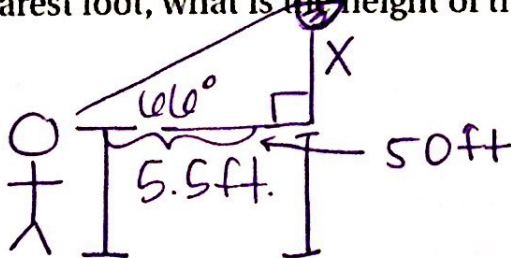
~~4 + 5 = x^2~~  
 $4 + 5 = x^2$   
 $\sqrt{9} = \sqrt{x^2}$   
 $x = 3$   
 $\csc \theta = \frac{3}{\sqrt{5}} = \frac{3\sqrt{5}}{5}$   
 $\sec \theta = \frac{3}{2}$   
 $\cot \theta = \frac{2}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$

Use a trigonometric function to find the value of  $x$ .



X	$x\sqrt{3}$	$2x$
$30^\circ$	$60^\circ$	$90^\circ$
$\frac{7\sqrt{3}}{3}$	7	$14\sqrt{3}/3$

5. A biologist's eye level is 5.5 ft above the ground. She measures the angle of elevation to an eagle's nest on a cliff to be  $66^\circ$  when she stands 50 ft from the cliff's base. To the nearest foot, what is the height of the eagle's nest?



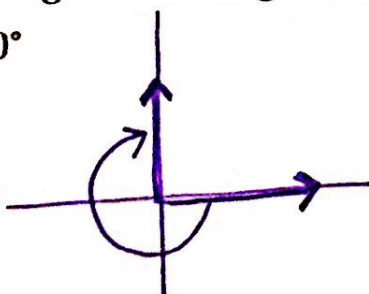
$$\tan 66 = \frac{x}{50}$$

$$x = 50(\tan(66))$$

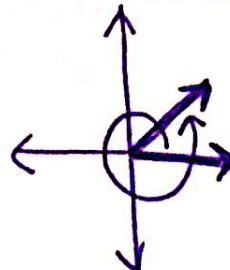
## 13-2 Angles of Rotation

Draw an angle with the given measure in standard position.

6.  $-270^\circ$



7.  $405^\circ$



Think about  
 Ref.  $\angle$  & cotermin.  
 angle.  
 $\frac{405}{-360}$   
 $\frac{45}{45}$

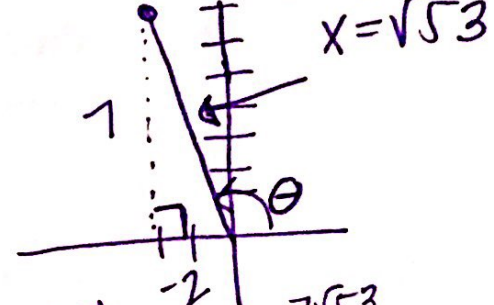
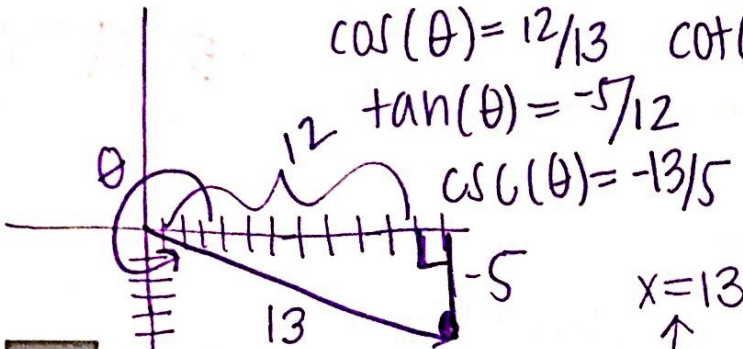
Point P is a point on the terminal side of  $\theta$  in standard position. Find the exact value of the six trigonometric functions for  $\theta$ .

8.  $P(12, -5)$   $\sin(\theta) = -5/13$   $\sec(\theta) = 13/12$   $P(-2, 7)$

$\cos(\theta) = 12/13$   $\cot(\theta) = 12/-5$

$\tan(\theta) = -5/12$

$\csc(\theta) = -13/5$



$\sin(\theta) = 7/\sqrt{53} = \frac{7\sqrt{53}}{53}$   
 $\cos(\theta) = -2/\sqrt{53}$   
 $\tan(\theta) = 7/-2$

**13-3 The Unit Circle**

Convert each measure from degrees to radians or from radians to degrees.

10.  $-120^\circ$

11.  $63^\circ$

12.  $\frac{3\pi}{8}$

13.  $\frac{10\pi}{3}$

$$-120^\circ \times \frac{\pi \text{ rad.}}{180^\circ}$$

$$\frac{63^\circ}{1} \times \frac{\pi \text{ rad.}}{180^\circ}$$

$$\frac{3\pi}{8} \times \frac{180^\circ}{\pi \text{ rad.}}$$

$$\frac{-10\pi}{3} \times \frac{180^\circ}{\pi}$$

$$\boxed{\frac{2\pi}{3} \text{ radians}}$$

$$\boxed{\frac{7\pi}{20} \text{ radians}}$$

$$\boxed{67.5^\circ}$$

$$\boxed{-600^\circ}$$

Use the unit circle to find the exact value of each trigonometric function.

14.  $\cos 210^\circ$

15.  $\tan 120^\circ$

16.  $\cos \frac{\pi}{2}$

17.  $\tan \frac{5\pi}{4}$

$$\boxed{\frac{-\sqrt{3}}{2}}$$

$$\boxed{-\sqrt{3}}$$

$$\boxed{0}$$

$$\boxed{1}$$

18. A bicycle tire rotates through an angle of  $3.4\pi$  radians in 1 second. If the radius of the tire is 0.34 m, what is the bicycle's speed in meters per second? Round to the nearest tenth.

$$\frac{3.4\pi \text{ radians}}{1 \text{ sec.}} \times \frac{.68\pi \text{ meters}}{2\pi \text{ radians}} =$$

$$\begin{aligned} C &= 2\pi r \\ C &= 2\pi(.34) \\ C &= .68\pi \end{aligned}$$

$$\downarrow$$
  

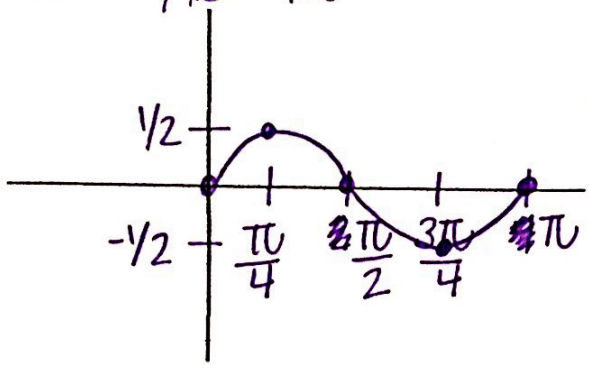
$$\frac{3.63 \text{ meters}}{\text{sec.}}$$



Using  $f(x) = \sin x$  or  $f(x) = \cos x$  as a guide, graph each function. Identify the amplitude and period.

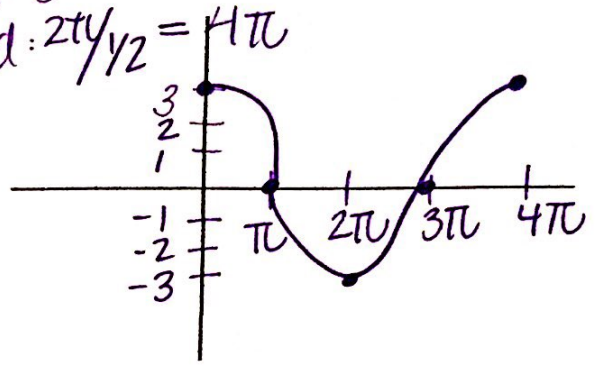
ampl:  $\frac{1}{2}$   
 period:  $\frac{2\pi}{\frac{1}{2}} = 4\pi$

7.  $f(x) = \frac{1}{2} \sin 2x$



ampl: 3  
 period:  $\frac{2\pi}{\frac{1}{2}} = 4\pi$

8.  $g(x) = 3 \cos \frac{1}{2}x$



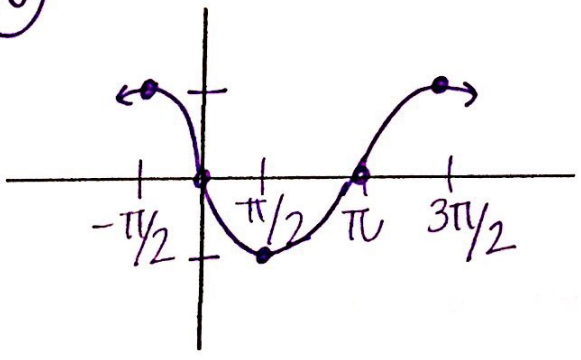
Using  $f(x) = \sin x$  or  $f(x) = \cos x$  as a guide, graph each function. Identify the x-intercepts and phase shift.

10.  $f(x) = \cos \left(x + \frac{\pi}{2}\right)$

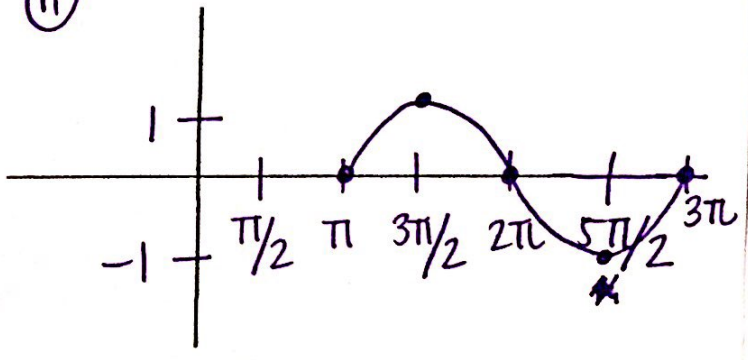
11.  $g(x) = \sin(x - \pi)$

12.  $h(x) = \sin \left(x + \frac{\pi}{4}\right)$

(10)



(11)



(12)

