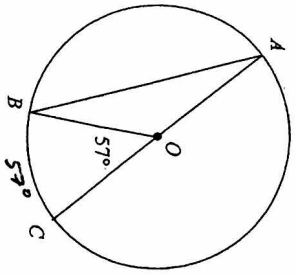


8. Find the measure of  $\angle BAC$ . (The figure is not drawn to scale.)

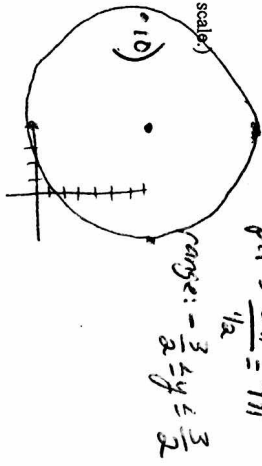
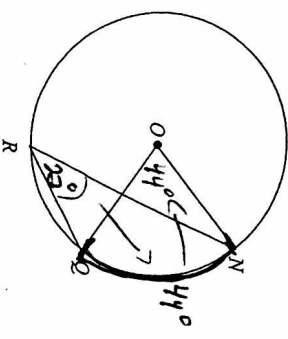


$m\angle BAC = \frac{1}{2}(57)$   
 $\boxed{28.5^\circ}$

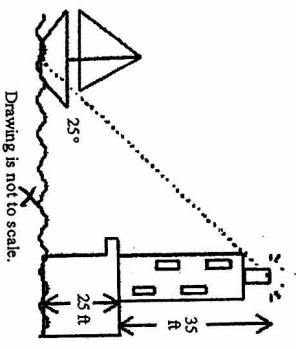
9. Find the period, range, and amplitude of the cosine function  $y = \frac{3}{2} \cos \frac{1}{2}x$ .

amp =  $\frac{3}{2}$   
 per =  $\frac{2\pi}{1/2} = 4\pi$   
 range:  $-\frac{3}{2} \leq y \leq \frac{3}{2}$

10. Graph  $(x+4)^2 + (y-7)^2 = 49$ .  $(-4, 7)$   
 $r = 7$



12. The line of sight from a small boat to the light at the top of a 35-foot lighthouse built on a cliff 25 feet above the water makes a 25 degree angle with the water. To the nearest foot, how far is the boat from the cliff?



$\tan 25^\circ = \frac{60}{x}$   
 $x = \frac{60}{\tan 25^\circ} = 128.67 \text{ ft}$   
 $\approx 129 \text{ ft}$

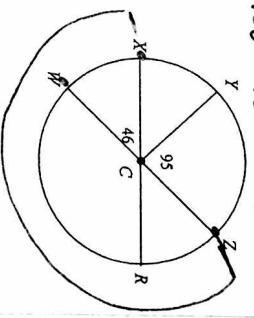
38. A Ferris wheel has a radius of 80 feet. Two particular cars are located such that the central angle between them is 165 degrees. To the nearest tenth, what is the measure of the intercepted arc between those two cars on the Ferris wheel?



Math 3- Unit 6- Circles & Trig REVIEW

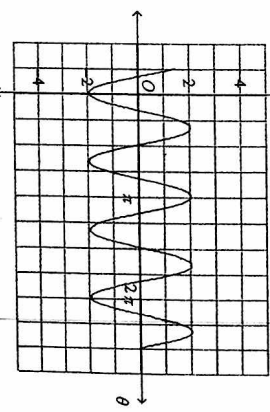
Short Answer

- Write an equation for the translation 3 units down of  $y = \sin x$ .  
 $y = \sin x - 3$
- Find the exact value of  $\cos 300^\circ$  and  $\sin 300^\circ$ .  
 $300^\circ = \frac{5\pi}{3}$   
 $\cos 300^\circ = \frac{1}{2}$ ,  $\sin 300^\circ = -\frac{\sqrt{3}}{2}$
- Write an equation for the translation of  $x^2 + y^2 = 25$ , 2 units right and 4 units down.  
 $(x-8)^2 + (y+4)^2 = 25$
- Find the exact value of  $\sin 120^\circ$ . If the expression is undefined, write undefined.  
 $\sin 120^\circ = \frac{\sqrt{3}}{2}$
- Write an equation of a circle with center  $(-5, -8)$  and radius 2.  
 $(x+5)^2 + (y+8)^2 = 4$
- $\overline{WZ}$  and  $\overline{XR}$  are diameters. Find the measure of arc  $ZWX$ . (The figure is not drawn to scale.)  
 $180^\circ + 46^\circ = 226^\circ$



Write a cosine function for the graph.

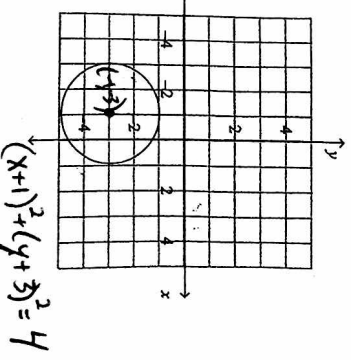
7.  $y = -2 \cos 3x$



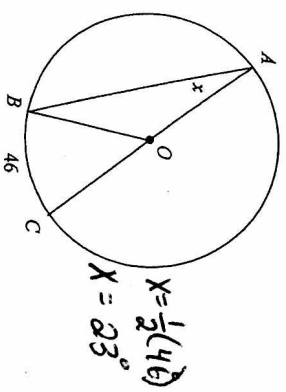
Sketch the angle in standard position.



- $-150^\circ$
- Find the exact value of  $\tan(90^\circ)$ . If the expression is undefined, write undefined.  
 $\tan 90^\circ = \text{undef.}$
- Find the center and radius of the circle with equation  $(x-5)^2 + (y+6)^2 = 9$ .



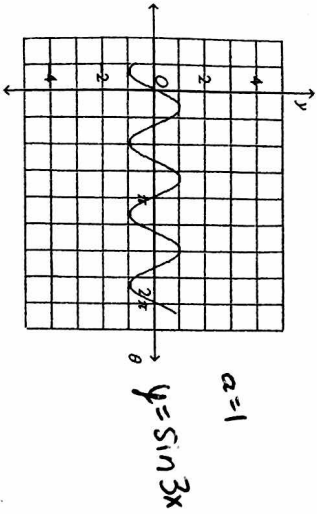
30. Write an equation in standard form for the circle.



$x = \frac{1}{2}(46)$   
 $x = 23$

why?  
 $\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{1}{x}$   
 so  $\tan 90^\circ = \frac{1}{0} = \text{undef.}$

20. Write the equation for the sine function shown below.



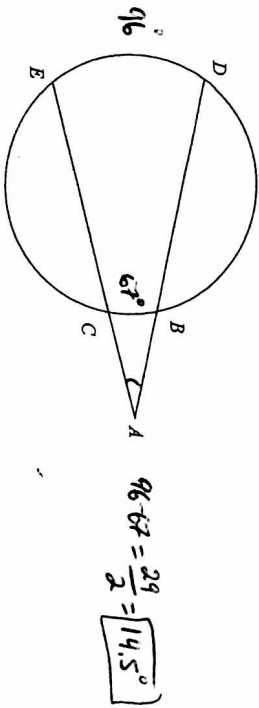
Write the measure in degrees.

21.  $\frac{3\pi}{5}$  radians  $\frac{3\pi}{5} \cdot \frac{180^\circ}{\pi} = \frac{540^\circ}{5} = 108^\circ$

22.  $\frac{7\pi}{4}$  radians  $-\frac{7\pi}{4} \cdot \frac{180^\circ}{\pi} = -\frac{1260^\circ}{4} = -315^\circ$

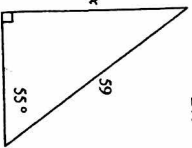
23. Find the measure of an angle between  $0^\circ$  and  $360^\circ$  coterminal with an angle of  $-110^\circ$  in standard position.  $-110^\circ + 360^\circ = 250^\circ$

24.  $m(\text{arc } DE) = 96$  and  $m(\text{arc } BC) = 67$ . Find  $m\angle A$ . (The figure is not drawn to scale.)



25. A particular sound wave can be graphed using the function  $y = -3 \sin x$ . Find the amplitude and period of the function.  $\text{amp} = 3$   $\text{per} = \frac{2\pi}{1} = 2\pi$

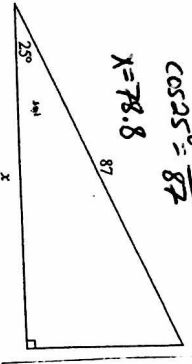
26.  $\sin 55^\circ = \frac{x}{59}$



$x = 48.3$

27.

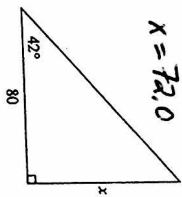
$\cos 25^\circ = \frac{x}{87}$



$x = 78.8$

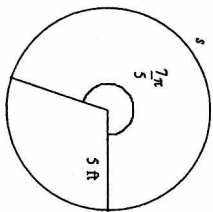
28.

$\tan 42^\circ = \frac{x}{80}$



$x = 72.0$

13. Use the circle below. Find the length  $s$  to the nearest tenth.



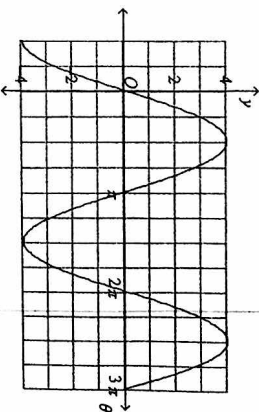
$s = r\theta$   
 $s = (5) \left( \frac{7\pi}{3} \right) = 7\pi = 21.99$

$(1, -1)$   $r = 2$

14. Find the center and radius of the circle with equation  $(x - 1)^2 + (y + 1)^2 = 4$ .

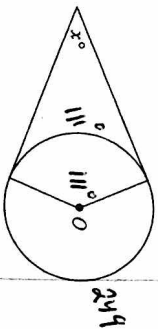
15. Find the exact value of  $\tan 225^\circ$ . If the expression is undefined, write *undefined*.  $\tan 225^\circ = 1$

16. Find the amplitude of the sine curve shown below.  $a = 4$



Assume that lines that appear to be tangent are tangent.  $O$  is the center of the circle. Find the value of  $x$ . (Figures are not drawn to scale.)

17.  $m\angle O = 111$



$x = \frac{360 - 111}{2} = 124.5$

$a = 2$   
 $b = \frac{2\pi}{4} = \frac{1}{2}$   
 $y = 2 \cos \frac{1}{2}x$

18. Write an equation of the cosine function with amplitude 2 and period  $4\pi$ .

19. Find the exact values of  $\cos \left( \frac{3\pi}{4} \right)$  and  $\sin \left( \frac{3\pi}{4} \right)$ .

Write the measure in radians. Express the answer in terms of  $\pi$ .

34.  $320^\circ \cdot \frac{\pi}{180} = \frac{320\pi}{180} = \frac{16\pi}{9}$

35.  $45^\circ \cdot \frac{\pi}{180} = \frac{\pi}{4}$

Write the standard equation for the circle.

36. center  $(2, 7)$ ,  $r = 4$   
 $(x - 2)^2 + (y - 7)^2 = 16$