HW 7-1

Name: _____

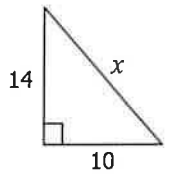
Date: _____ **Bell:** _____

Homework 1: Pythagorean Theorem, Special Right Triangles, & Trig Functions

**** This is a 2-page document! ****

Directions: Find each missing length. Give all answers in simplest radical form.

1.



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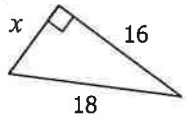

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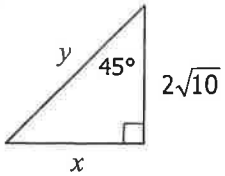

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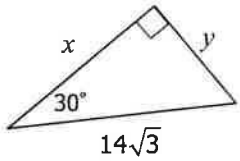

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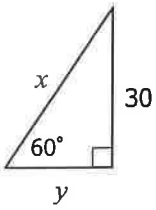

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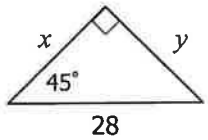
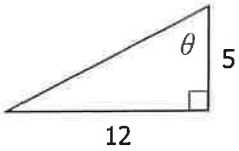
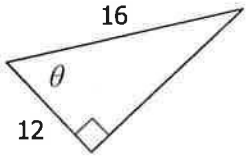


7. Find the values of the six trigonometric functions for θ.



8. Find the values of the six trigonometric functions for θ.



$\sin\theta =$	$\csc\theta =$	$\sin\theta =$	$\csc\theta =$
$\cos\theta =$	$\sec\theta =$	$\cos\theta =$	$\sec\theta =$
$\tan\theta =$	$\cot\theta =$	$\tan\theta =$	$\cot\theta =$

9. Given the ratio for tan θ, find the remaining ratios.		**10.** Given the ratio for csc θ, find the remaining ratios.	
$\sin\theta =$	$\csc\theta =$	$\sin\theta =$	$\csc\theta = \frac{\sqrt{7}}{2}$
$\cos\theta =$	$\sec\theta =$	$\cos\theta =$	$\sec\theta =$
$\tan\theta = \frac{4}{5}$	$\cot\theta =$	$\tan\theta =$	$\cot\theta =$

Directions: Give the exact ratios for each function below.

11. sin 45°	**12.** tan 60°	**13.** cos 30°
14. cot 60°	**15.** sec 45°	**16.** csc 60°

HW 7-2

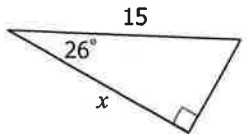
Name: _____

Date: _____ **Bell:** _____ **Homework 2:** Finding Side and Angle Measures

**** This is a 2-page document! ****

Directions: Find each missing measure. Round all answers to the nearest tenth.

1.



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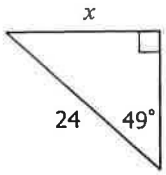

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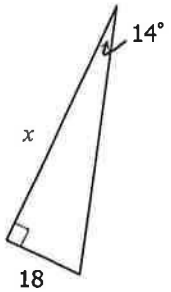

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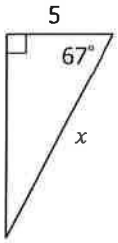

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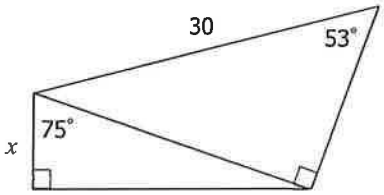

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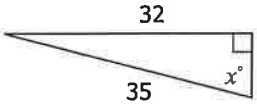

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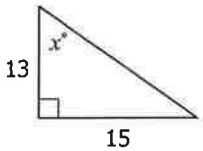

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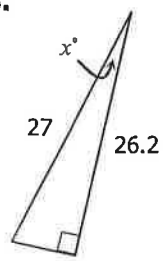

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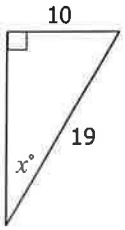


10. David is standing 500 feet away from the base of a cell phone tower. The angle of elevation from his eyes to the top of the tower is 78°. If David's eyes are 6 feet above the ground, how tall is the tower?

11. The angle of elevation from the top of one building to another is 26°. If the shorter building is 400 feet tall and the buildings are 1500 feet apart, how tall is the other building?

12. A 200-foot supporting cable is tied to the top of a cell phone tower then secured to a point on the ground. If the angle of elevation from the point on the ground to the top of the tower is 38°, find the height of the tower.

13. The angle of depression from the top to the bottom of a ski lift is 43°. If the vertical distance between the top and bottom of the lift is 800 feet, determine the length of the cable between them.

14. An airplane is descending to a runaway. At an altitude of 15.2 miles, its horizontal distance to the runway is 60 miles. Find the angle of descent.

HW 7-3

Name: _____

Date: _____ **Bell:** _____ **Homework 3:** Angles and Angle Measure

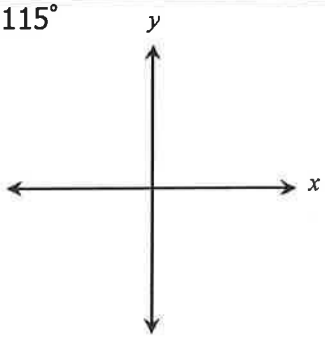
**** This is a 2-page document! ****

Directions: Convert each measure to radians.		
1. 225°	**2.** 20°	**3.** -255°
4. -140°	**5.** 75°	**6.** -300°

Directions: Convert each measure to degrees.		
7. $\frac{23\pi}{12}$	**8.** $-\frac{31\pi}{36}$	**9.** $\frac{\pi}{12}$
10. $\frac{5\pi}{9}$	**11.** $-\frac{\pi}{2}$	**12.** $-\frac{7\pi}{6}$

Directions: Sketch each angle. Then give two coterminal angles (one positive and one negative) and the reference angle.

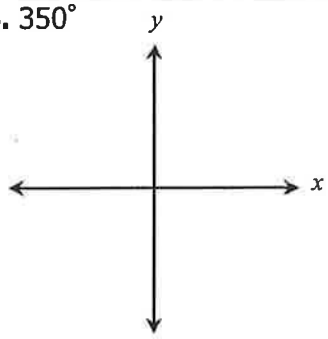
13. 115°



Coterminal ∠'s:

Reference ∠:

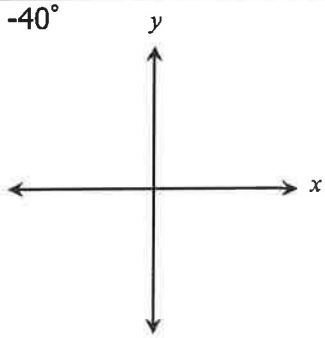
14. 350°



Coterminal ∠'s:

Reference ∠:

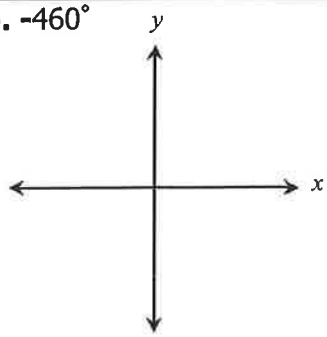
15. -40°



Coterminal ∠'s:

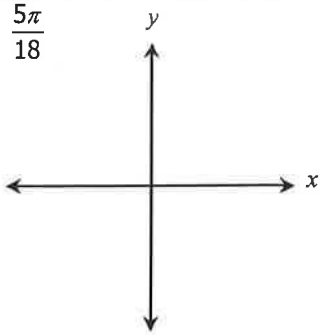
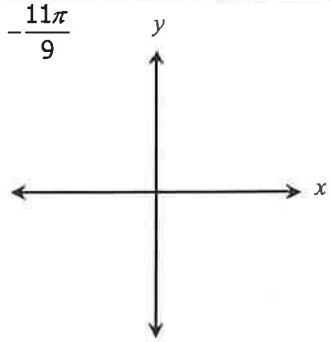
Reference ∠:

16. -460°

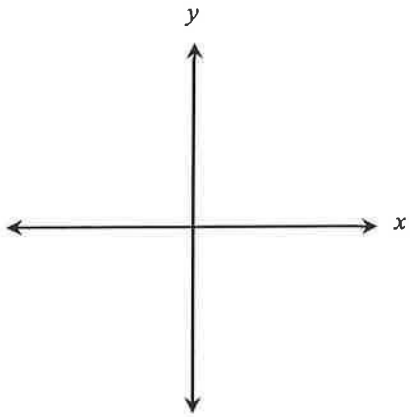
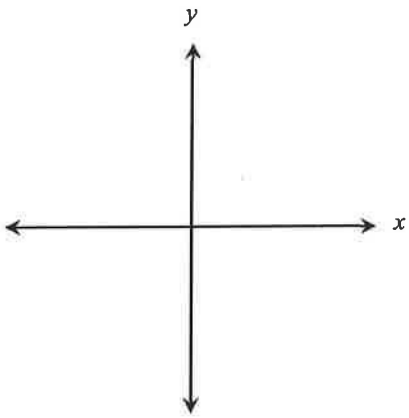
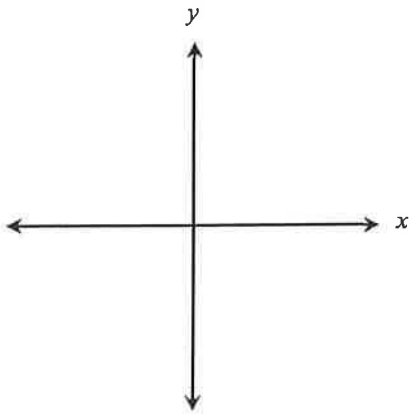


Coterminal ∠'s:

Reference ∠:

17. $\frac{5\pi}{18}$  **Coterminal ∠'s:** **Reference ∠:**	**18.** $-\frac{11\pi}{9}$  **Coterminal ∠'s:** **Reference ∠:**

Directions: Sketch the angle in standard form whose terminal side passes through the given point. Find the exact value for each trignomometric function.

19. (-5, 12) 	$\sin\theta =$	$\csc\theta =$
	$\cos\theta =$	$\sec\theta =$
	$\tan\theta =$	$\cot\theta =$
20. (2, 8) 	$\sin\theta =$	$\csc\theta =$
	$\cos\theta =$	$\sec\theta =$
	$\tan\theta =$	$\cot\theta =$
21. (3, -6) 	$\sin\theta =$	$\csc\theta =$
	$\cos\theta =$	$\sec\theta =$
	$\tan\theta =$	$\cot\theta =$

HW 7-4

State the sign (+ or -) for a) sinθ, b) cosθ, and c) tanθ.

1. $\frac{\pi}{2}$

a)

b)

c)

2. -450°

a)

b)

c)

3. $\frac{4\pi}{3}$

a)

b)

c)

4. $\frac{7\pi}{4}$

a)

b)

c)

Without using a calculator, find the exact value.

5. $\cos 270°$

6. $\sin 0°$

7. $\sin\frac{\pi}{4}$

8. $\tan\frac{7\pi}{6}$

9. $\tan\frac{-13\pi}{6}$

10. $\cos 990°$

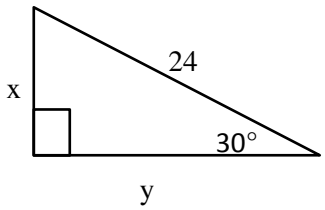
11. $\sin\frac{29\pi}{6}$

12. $\tan -2\pi$

Math 3: Special Right Triangles & Unit Circle HW **Name: _____**

Find the value of each variable. Write answers in simplest radical form.

1.



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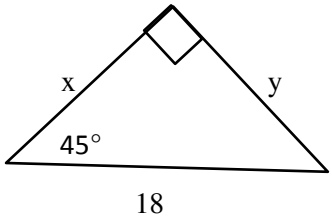

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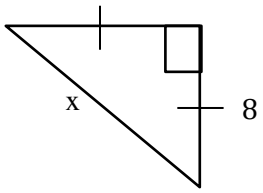

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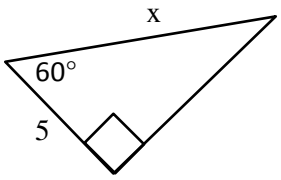

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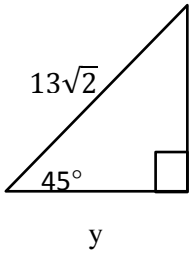

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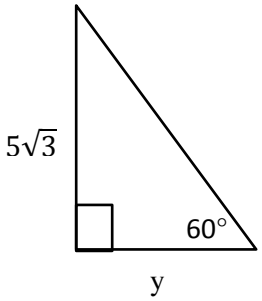


Use the unit circle to answer the following.

7. $\cos\frac{5\pi}{6}$

8. $\sin\frac{\pi}{4}$

9. $\cos\frac{3\pi}{2}$

10. $\sin\frac{5\pi}{3}$

11. $\sin 210°$

12. $\cos 180°$

13. $\sin 60°$

14. $\cos 315°$

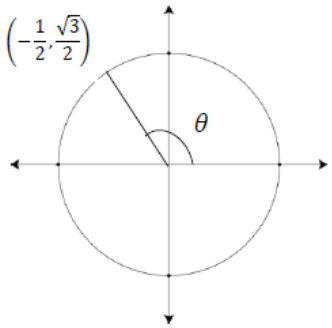
15. $\cos\frac{2\pi}{3}$

16. $\sin\frac{11\pi}{6}$

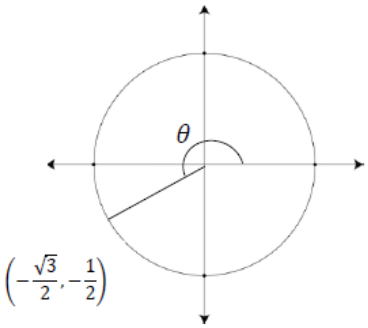
17. $\cos\frac{5\pi}{4}$

18. $\sin\pi$

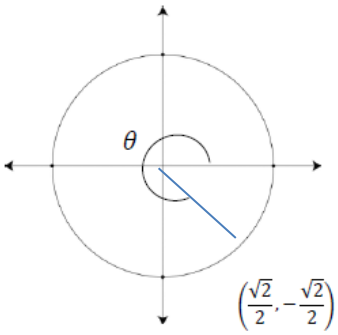
19. $\sin\vartheta$ _____



20. $\sin\vartheta$ _____



21. $\sin\vartheta$ _____



Math 3: Graphing Trigonometric Functions HW **Name: _____**

Determine the amplitude, the equation of the midline and if it is reflected for the following.

1. $y = 2\cos x$

a=2 | y=0 | no

2. $y = 3\sin\theta$

a=3 | y=0 | no

3. $f(x) = \frac{1}{2}\sin x - 4$

a=1/2 | y=-4 | no

4. $f(x) = -3\cos x + 2$

a=3 | y=2 | yes

5. $y = -\sin x - 2$

a=1 | y=-2 | yes

6. $f(x) = \frac{5}{2}\cos x + 3$

a=5/2 | y=3 | no

7. What is the period of sine?

2π

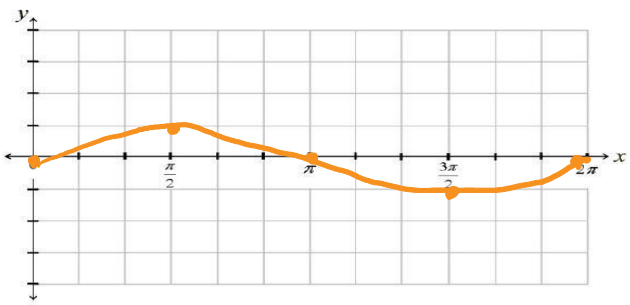
8. What is the period of cosine?

2π

Determine the amplitude, the equation of the midline, reflection and graph the following. Label the y axis.

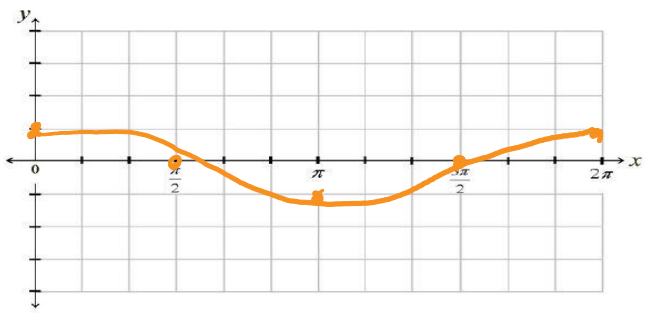
9. $y = \sin x$

Amp. 1 midline y=0 reflect no



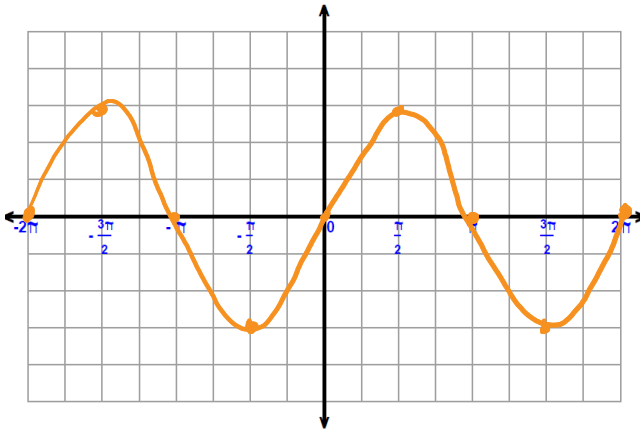
10. $y = \cos\theta$

Amp. 1 midline y=0 reflect no



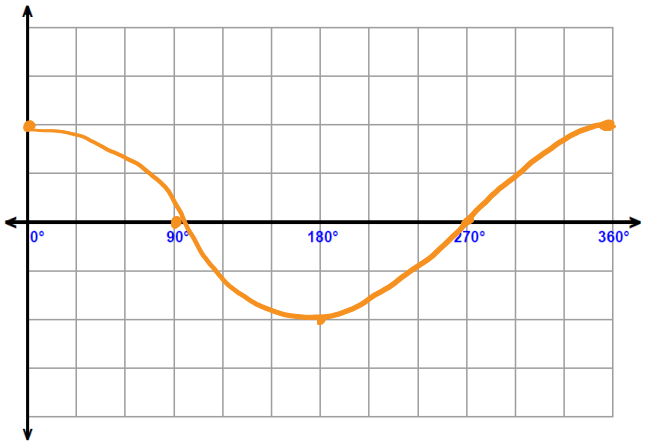
11. $f(x) = 3\sin x$

Amp. 3 midline y=0 reflect no



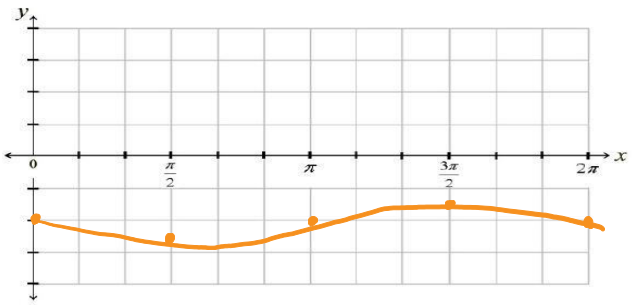
12. $f(\theta) = 2\cos\theta$

Amp. 2 midline y=0 reflect no



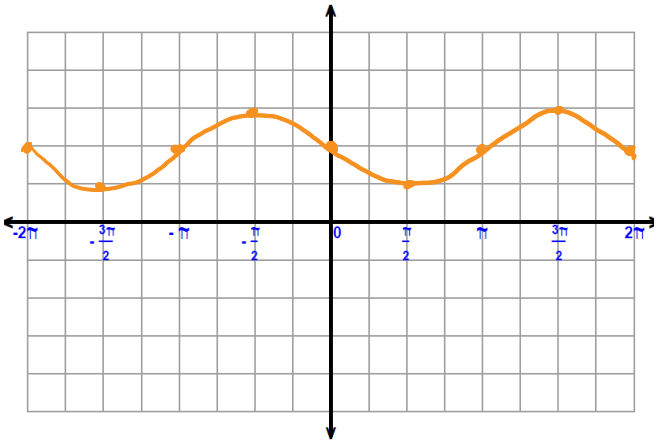
13. $y = -\frac{1}{2}\sin x - 2$

Amp. 1/2 midline y=-2 reflect yes



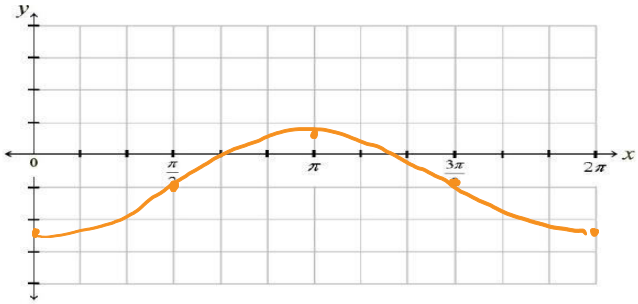
14. $f(x) = -\sin x + 2$

Amp. 1 midline y=2 reflect yes



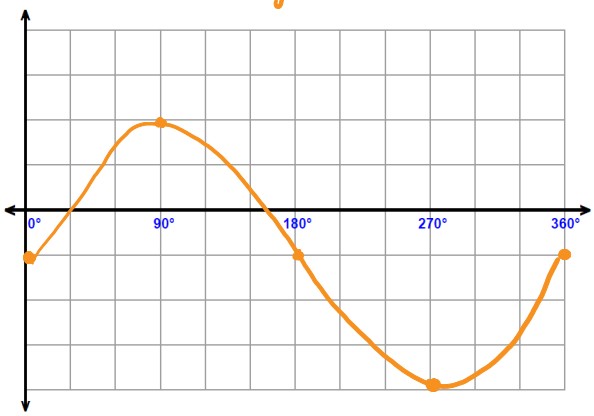
15. $f(x) = -\frac{3}{2}\cos x - 1$

Amp. 3/2 midline y=-1 reflect yes



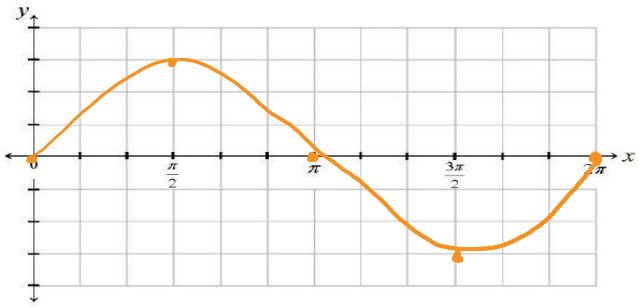
16. $f(x) = 3\sin x - 1$

Amp. 3 midline y=-1 reflect no



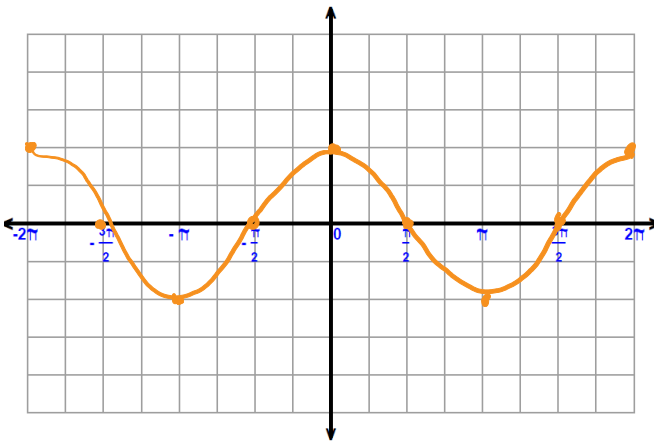
17. $y = 3\sin x$

Amp. 3 midline y=0 reflect no



18. $f(x) = 2\cos x - 1$

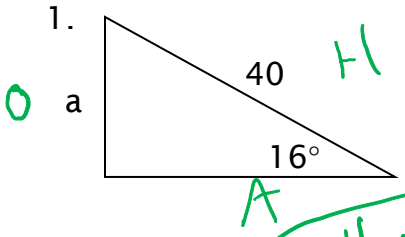
Amp. 2 midline y=-1 reflect no



CC Math 3 Unit 8 Review Name _____

All triangles are right triangles. Solve for the variables:

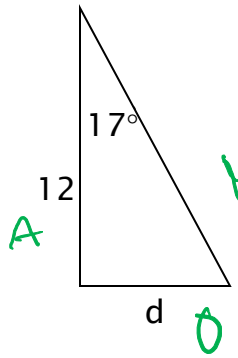
1.



$\sin(16) = \frac{a}{40}$

a= 11.03

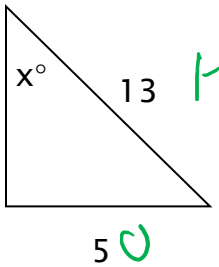
2.



$\tan(17) = \frac{d}{12}$

d = 3.67

3.

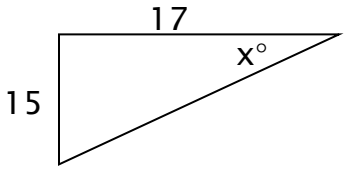


$\sin(x) = \frac{5}{13}$

22.6°

x = _____

4.

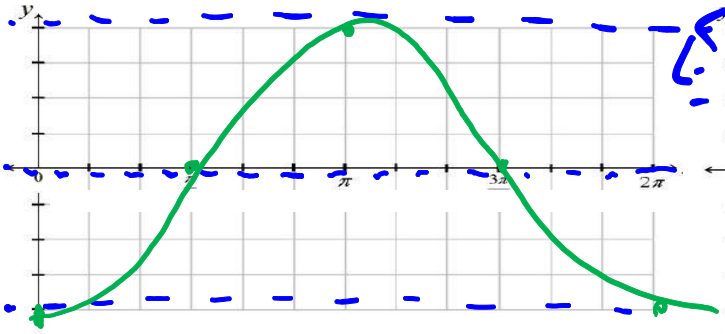


$\tan(x) = \frac{15}{17}$

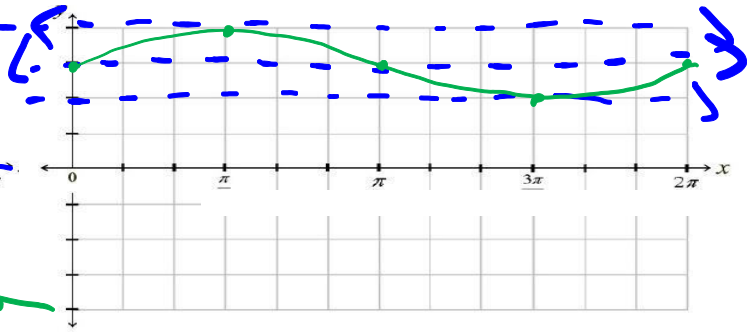
41.42°

x = _____

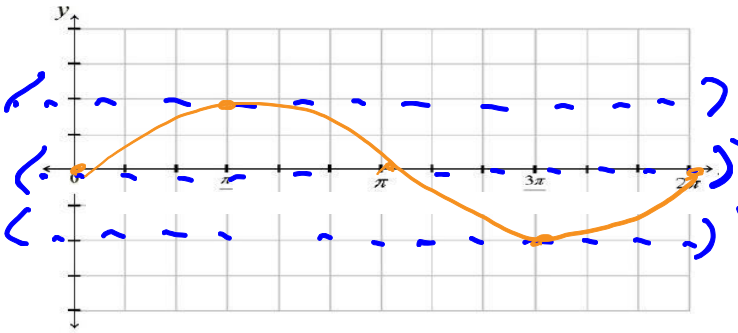
15. Graph $y = -4\cos\vartheta$



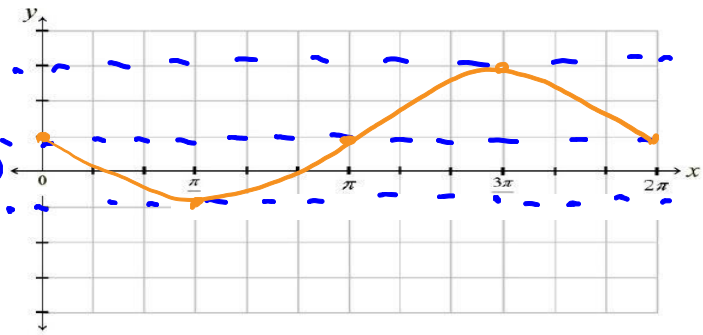
16. Graph $y = \sin x + 3$



17. Graph $y = 2\sin\vartheta$

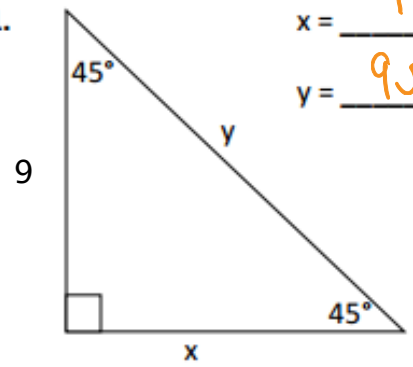


18. Graph $y = -2\sin x + 1$



Form A | Use the properties of special right triangles (30°-60°-90° and 45°-45°-90°) to solve problems.

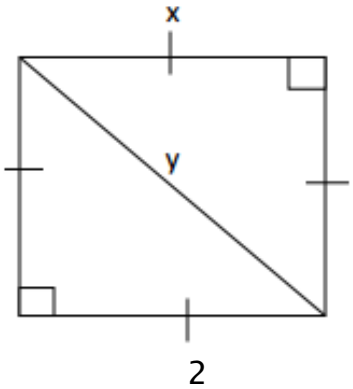
1.



x = 9

y = $9\sqrt{2}$

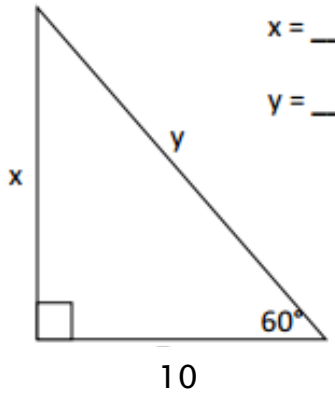
2.



x = 2

y = $2\sqrt{2}$

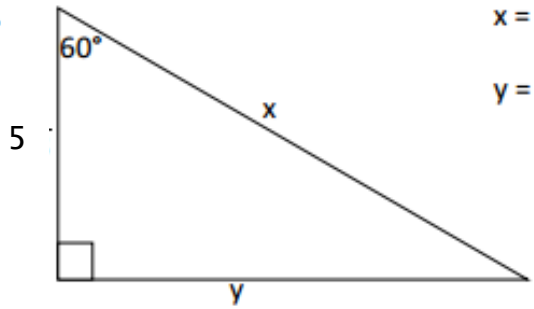
3.



x = $10\sqrt{3}$

y = 20

4.



x = 10

y = $5\sqrt{3}$

5. Name two angles that are coterminal to 120°.

480°, −240°

7. What is the exact value of sin 45°?

$\frac{\sqrt{2}}{2}$

6. Name two angles that are coterminal to $\frac{2\pi}{7}$?

$\frac{16\pi}{7}$ $\frac{-12\pi}{7}$

8. Which angles have a cosine of $-\frac{\sqrt{3}}{2}$?

150° 210°

$\frac{5\pi}{6}$ $\frac{7\pi}{6}$

Find the following values using your Unit Circle.

9. $\sin 120°$ $\frac{\sqrt{3}}{2}$

10. $\cos \frac{5\pi}{3}$ $1/2$

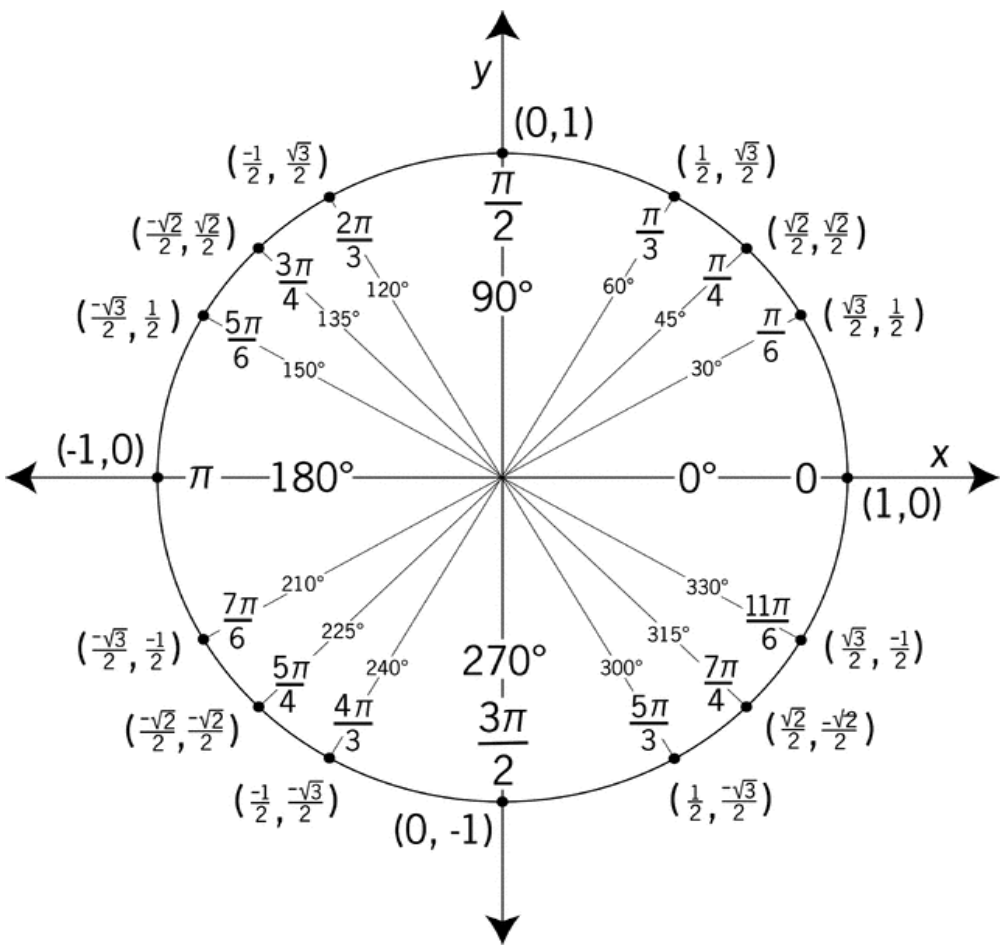
11. $\tan 300°$ $-\sqrt{3}$

12. $\tan 2\pi$ 0

13. $\sin 270°$ -1

14. $\tan \frac{7\pi}{6}$ $\frac{\sqrt{3}}{3}$

15. $\cos 150°$ $-\frac{\sqrt{3}}{2}$

16. $\tan 45°$ 1

17. $\sin \frac{\pi}{2}$ 1