

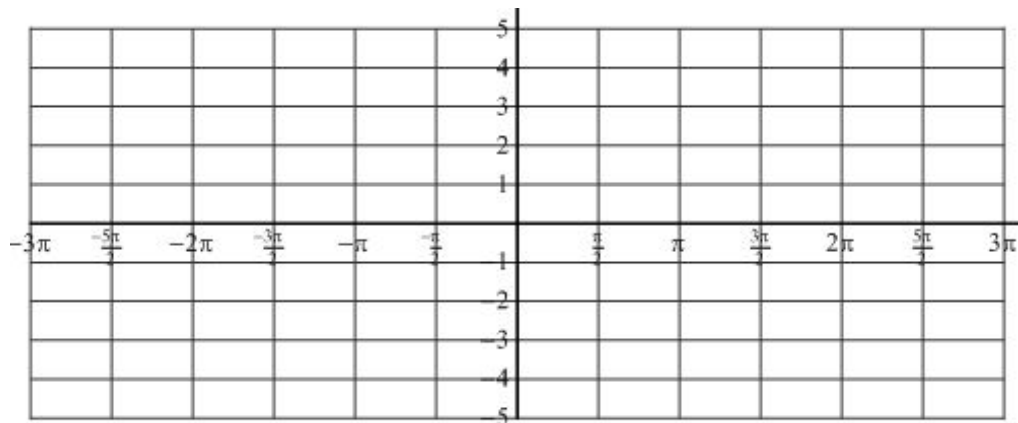
Name:

6.R ~ Test 6 Review

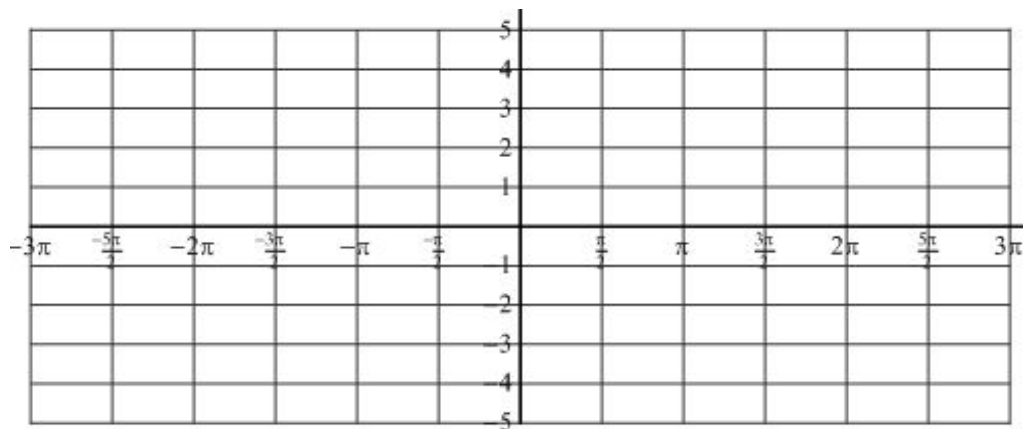
Class Period:

No Calculator Section : If your score was below a 126, You need to do problems 1-8, 14-15
 Calculator section If your score was below a 42, You need to do problems 5,9,16,
 TRIANGLE TRIG: If your score was below a 36, You need to do problems 10-13

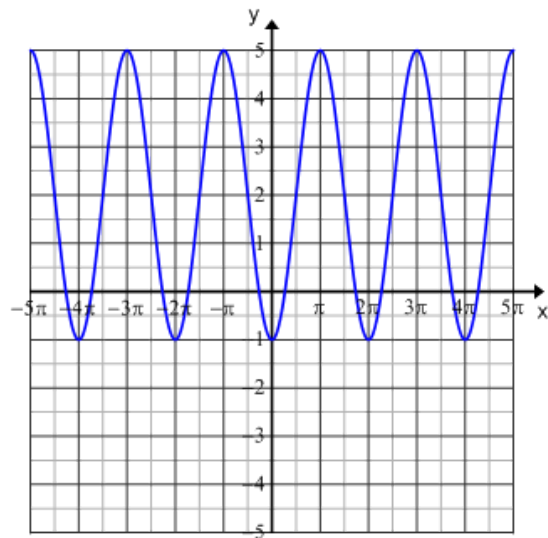
1. Graph 2 full cycles of the following equation: $y = -3\cos 2x$



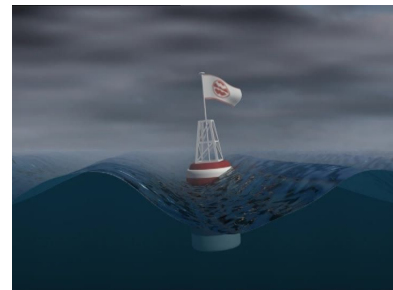
2. Graph 2 full cycles of the following equation: $y = -2\sin(x + \frac{\pi}{2}) - 1$



3. Given the graph, write the equation of the trig function.



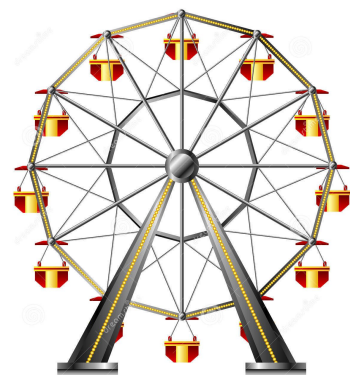
5. A buoy off the coast of Hawaii bobs up and down with the ocean swells. The buoy's position is modeled by the equation: $h = a \sin bt + k$. During a storm, the buoy's height varies from 2 ft to 20 ft and there is 4.5 seconds between each 20ft wave. What are the values of a, b & k in the equation?



What is the height at 15 seconds?

What are the first 4 times the buoy is 15 feet?

6. A ferris wheel at an amusement park has a diameter of 120 ft and from the center of the ferris wheel to the ground is 74 feet. It takes 3 min for the ferris wheel to make one revolution.



a. Graph this situation.

b. What is the equation for the ferris wheel?

c. After getting on, how long does it take to go from the lowest point to 45 feet above the ground?

7. Determine if the following equations are even, odd, or neither.

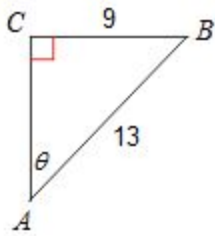
a. $f(x) = \frac{6x}{3x^2+1}$

b. $f(x) = \frac{4}{x^2-2}$

9. Find all solutions of the equation on $0 \leq x < 360^\circ$ and $0 \leq x < 2\pi$.

$$\tan x = -\frac{1}{\sqrt{3}}$$

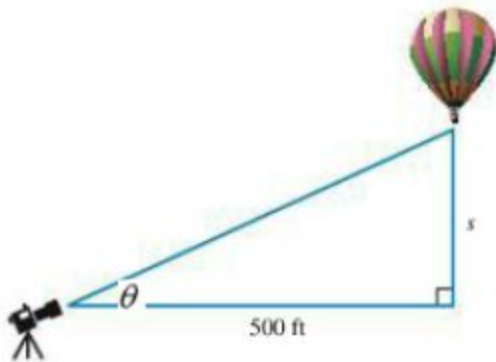
10. Find the measure of the angle, give your angle measure in both degrees and radians.



a. Degree measure:

b. Radian measure:

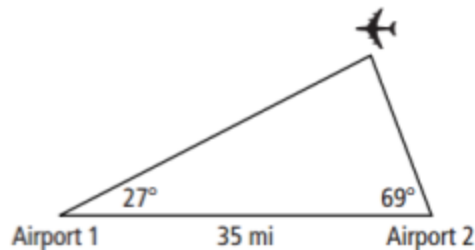
11. A photographer is looking at a hot air balloon as it rises above the ground. The balloon is 500 feet away from the photographer.



a. Write θ as a function of height of the balloon s .

b. Find θ when $s = 100$ feet and when $s = 200$ feet.

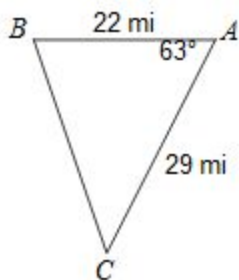
12. An airplane is flying between two airports that are 35 miles apart. The radar at one airport registers a 27° of elevation and the other registers a 69° angle of elevation to the airplane. How far is the airplane from each airport?



a. Plane to Airport 1:

b. Plane to Airport 2:

13. Find the measures of all the missing angles and sides.



a. Side a:

b. Angle B:

c. Angle C:

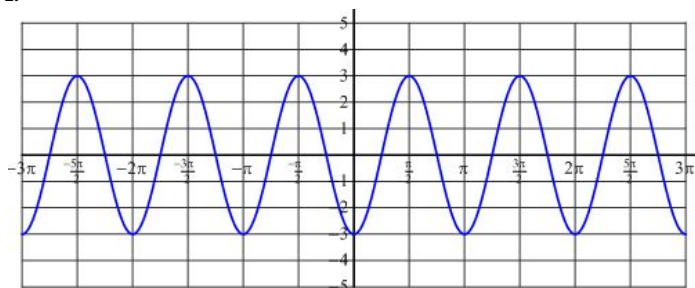
14. Find the equation of a polynomial with solutions at 4 and 5i.

15. Find all six trig functions given the angle $\frac{3\pi}{4}$

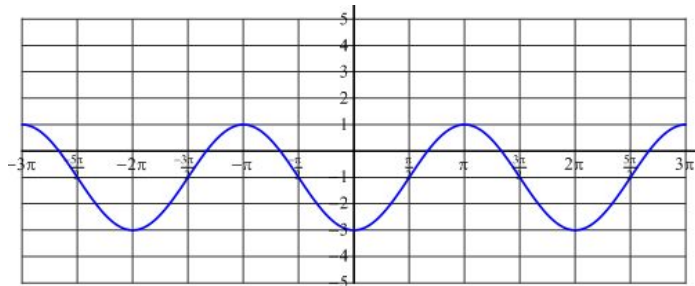
16. Solve the equation for k: $\frac{1}{p} + \frac{2}{q} = \frac{1}{k}$

Answers

1.



2.



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

5. $h=10\sin 80t+11$; 19.7 ft; 0.29sec, 1.96sec, 4.79sec, 6.46sec

6. b. $h=-60\cos 2x+74$, 30.5seconds

7.

- a. odd
- b. even

8.

- a. $-\frac{7}{11}$
- b. $\frac{11}{7}$
- c. $\frac{11}{7}$

9. $150^\circ, \frac{5\pi}{6}$ and $330^\circ, \frac{7\pi}{6}$

10.

- a. Degree: 43.81°
- b. Radian: $.765 \text{ rad}$

11.

- a. $\sin \theta = \frac{s}{500}$
- b. 11.3° and 21.8°

12.

- a. Plane to Airport 1: 15.98 miles
- b. Plane to Airport 2: 32.86 miles

13.

- a. Side a: 27.31
- b. Angle B: 71.11°
- c. Angle C: 45.89°

14. $(x-4)(x-5i)(x+5i)$

15. $\sin \frac{3\pi}{4} = \frac{\sqrt{2}}{2}$, $\cos \frac{3\pi}{4} = -\frac{\sqrt{2}}{2}$, $\tan \frac{3\pi}{4} = -1$
 $\csc \frac{3\pi}{4} = \sqrt{2}$, $\sec \frac{3\pi}{4} = -\sqrt{2}$, $\cot \frac{3\pi}{4} = -1$

16. $k = \frac{pq}{q+2p}$