

**Test Review
Chapter 6 Spiral**

ALL PROBLEMS MUST BE DONE ON SEPARATE PAPER OTHERWISE; THE REVIEW WILL NOT BE GRADED. SHOW ALL WORK FOR CREDIT. REVIEW IS DUE ON TEST DAY.

Convert the angle to a decimal in degrees. Round the answer to two decimal places.

1) $69^{\circ}23'31''$

Convert the angle to D° M' S'' form. Round the answer to the nearest second.

2) 133.79°

If s denotes the length of the arc of a circle of radius r subtended by a central angle θ , find the missing quantity.

3) $r = 10.6$ inches, $\theta = 120^{\circ}$, $s = ?$

4) $r = \frac{2}{3}$ feet, $s = 12$ feet, $\theta = ?$

Convert the angle in degrees to radians. Express the answer as multiple of π .

5) 87°

Convert the angle in radians to degrees. If necessary round to two decimal places

6) $\frac{8\pi}{9}$

7) 1

If A denotes the area of the sector of a circle of radius r formed by the central angle θ , find the missing quantity. If necessary, round the answer to two decimal places.

8) $r = 14$ inches, $\theta = 3$ radians, $A = ?$

9) $r = 20$ feet, $A = 21$ square feet, $\theta = ?$ _____

Solve the problem.

10) An irrigation sprinkler in a field of lettuce sprays water over a distance of 40 feet as it rotates through an angle of 140° . What area of the field receives water? If necessary, round the answer to two decimal places.

11) An object is traveling around a circle with a radius of 10 centimeters. If in 20 seconds a central angle of $\frac{1}{3}$ radian is swept out, what is the linear speed of the object?

In the problem, t is a real number and P = (x, y) is the point on the unit circle that corresponds to t. Find the exact value of the indicated trigonometric function of t.

12) $\left(\frac{4}{9}, \frac{\sqrt{65}}{9}\right)$ Find $\sin t$.

13) $\left(-\frac{\sqrt{77}}{9}, \frac{2}{9}\right)$ Find $\cos t$.

Find the exact value. Do not use a calculator.

14) $\sin 2\pi$

15) $\cos 0$

16) $\cot 0$

17) $\cos 45^{\circ}$

18) $\sec \frac{\pi}{6}$

19) $\sec \frac{19\pi}{4}$

Find the exact value of the expression. Do not use a calculator.

20) $\sin 135^{\circ} - \sin 270^{\circ}$

Use a calculator to find the approximate value of the expression rounded to two decimal places.

21) $\sec \frac{\pi}{12}$

A point on the terminal side of an angle θ is given. Find the exact value of the indicated trigonometric function of θ .

22) (-12, 5) Find $\cos \theta$.

Name the quadrant in which the angle θ lies.

23) $\cos \theta < 0$, $\csc \theta < 0$

24) $\tan \theta > 0$, $\sin \theta < 0$ _____

Use the properties of the trigonometric functions to find the exact value of the expression. Do not use a calculator.

25) $\sin^2 25^{\circ} + \cos^2 25^{\circ}$

Find the exact value of the indicated trigonometric function of θ .

26) $\sec \theta = \frac{9}{2}$ θ in quadrant IV Find $\tan \theta$.

Use transformations to graph the function, label key points and intercepts.

27) $y = \cos\left(x - \frac{\pi}{3}\right)$ 28) $y = -4 \cos x$ 29) $y = \cos x + 5$

30) $y = 3 \cos x - 2$ 31) $y = \sin(\pi x)$

Without graphing the function, determine its amplitude or period as requested.

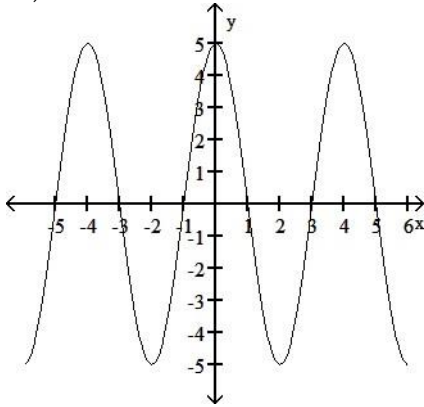
32) $y = -2 \sin 3x$ Find the amplitude. 33) $y = 4 \cos \frac{1}{3}x$ Find the period.

Write the equation of a sine function that has the given characteristics.

34) Amplitude: 5 Period: 3 35) Amplitude: 3 Period: 4π

Find an equation for the graph.

36)



Graph the function, labeling key points.

37) $y = -\cot(\pi x)$ 38) $y = 2 \tan(4x)$ 39) $y = \sec(3x)$ 40) $y = 2 \sec\left(\frac{1}{3}x\right)$

Find (i) the amplitude, (ii) the period, and (iii) the phase shift.

41) $y = -\frac{1}{2} \cos(2x - 2\pi)$

Write the equation of a sine function that has the given characteristics.

42) Amplitude: 4 Period: 3π Phase Shift: $-\frac{\pi}{3}$

Graph the function. Show at least one period, labeling key points.

43) $y = 2 \sin(4x + 3\pi)$ 44) $y = 3 \cos\left(3x + \frac{\pi}{2}\right)$

An object attached to a coiled spring is pulled down a distance a from its rest position and then released. Assuming that the motion is simple harmonic with period T , write an equation that relates the displacement d of the object from its rest position after t seconds. Also assume that the positive direction of the motion is up.

45) $a = 6$; $T = 3$ seconds

At time $t = 0$, an object attached to a coiled spring is at its resting position and moving down. Assuming that the motion is simple harmonic with period T , write an equation that relates the displacement d of the object from its rest position after t seconds. Also assume that the positive direction of the motion is up.

46) $a = 10$; $T = 4$ seconds

The displacement d (in meters) of an object at time t (in seconds) is given. Describe the motion of the object. What is the maximum displacement from its resting position, the time required for one oscillation, and the frequency?

47) $d = 4 \sin(5t)$ 48) $d = 4 \cos(3t)$