



## MATHS

# BOOKS - KAPLAN INC MATHS (ENGLISH)

# GEOMETRY

How Much Do You Know

**1.** What is the maximum vlaue of y on the circumference of the circle defined by the

equation  $x^2 + y^2 + 6x - 10y - 47 = 0$  ?

A. 9

B. 14

C. 16

D. 19

**Answer: B** 

Watch Video Solution

**2.** A yogurt factory fills cylindrical containers 80 percent of the way to the top, putting 6 ounces of yougurt in each cup. The containers are 4 inches tall and 2.5 inch hes wide. What is the approximate volume of one ounce of youngurt in cubic inches ?

A. 2.1

 $\mathsf{B.}\,2.6$ 

C. 3.3

#### $\mathsf{D.}\,4.2$







**1.** Triangle DEF is similar to triangle ABC, and both are plotted on a coordinate plane (not shown). The vertices of triange DEF are D(3, 2), E(3, -1), and F(-1, -1). Two of triangle ABC's vettices are quadrant of the coordinate plane as vertex D, what is the y-

coordinate of vertex A?



2. When Ted earned his driver's licence, he wanted his first solo drive to be a friend's house. Previously. Ted had always biked to his friend's hours and was able to cut through the yards of neighbors to travel in a straight line. In his car, however, Ted travels a longer distance as he follows the streets. As a result,

he travels 6 miles east, 6 miles south, and 2 more miles east by car. How much shorter, in miles, is Ted's bike route than his car route ?

### Watch Video Solution

**3.** During a comping trip. Aundria and Annette decide to travel to their campsite using two different routes. Aundria takes the hiking trail that travels 5 miles south, 6 miles east, 7 miles south, and 2 miles west to the campsite, Annette uses the cross-country route that

starts at the same point as the kiking trail but goes in a straight line from there to the campsite. About how many miles total will the two travel?

A. 32.65

B.33.42

C.34.00

D.34.42

### Answer: A



**4.** The lenths of the legs of a right triangle are 3x and x + 1. The hypotenuse is 3x + 1. What is the value of x ?



5. A table screen has a 12-inch diagonal. If the length of the screen is  $\sqrt{3}$  times longer than the width, what is the area, in square inches, of the screen ?

A. 12

B.  $12\sqrt{3}$ 

C. 36

D.  $36\sqrt{3}$ 

Answer: D

Watch Video Solution

**6.** A theater is building a portable ramp to allow equimpment and people easy access to the stage, which is 2 meters high. If the ramp

is 4 meters long, what is the angle of the

incline in degrees ?

### Watch Video Solution

**7.** 
$$x^2 + 6x + y^2 - 8y = 171$$

The equation of a circle in the xy-plane is shown above. What is the positive difference between the x-and y-coordinates of the center of the circle ?



**8.** 
$$x^2 + y^2 + 8x - 20y = 28$$

What is the diameter of the circle given by the equation above ?

A. 12

B. 24

C. 28

D. 56

#### Answer: B

Watch Video Solution

**9.** A circle in the xy-plane is defined by the equation  $(x - 4)^2 + (y + 2)^2 = 100$ . Which of the following points is located on the circumference of the circle ?

A. 
$$(\,-3,\,5)$$

- B.(0,9)
- C.(4, -2)
- D.(4, 8)

#### Answer: D



**10.** Two oramental glass spheres have diameters of 6 inches and 12 inches, respectively. What is the positive difference in their volumes ?

A.  $36\pi$ 

 $\mathsf{B.}\,252\pi$ 

 $\mathsf{C.}\,288\pi$ 

D. 2,  $016\pi$ 

### Answer: B



**11.** Alma pours water into a small cylindrical glass with a height of 6 inches and a diameter of 3 inches. The water fills the glass to the very top, so she decides to pour it into a bigger glass that is 8 inches tall and 4 inches in diamter. Assuming alma doesn't spill any when she pours, how many inches high will the water reach in he bigger glass?

A. 1.5

B. 2.25

C. 3.375

 $D.\,6.0$ 

Answer: C

### Watch Video Solution

**12.** Desiree is making apple juice from concentrate. The cylindrical container of concentrate has a diameter of 7 centimmeters

ans a height of 12 centimeters. To make the juice, the concentrate must be diluted with water so that the mix is 75 percent water and 25 percent concentrate. What is the total volume of juice, rounded to the nearest cubic centimeter, that will be produced if Desiree follows the direction exactly?

**O** Watch Video Solution

**13.** Desiree is making apple juice from concentrate. The cylindrical container of concentrate has a diameter of 7 centimmeters ans a height of 12 centimeters. To make the juice, the concentrate must be diluted with water so that the mix is 75 percent water and 25 percent concentrate. Desiree is going to serve the apple juice in a cylindrical pitcheer with a diameter of 10 centimeters. What is the minimum height of the pitcher, rounded to the nearest

centimeter, required for it to hold the apple

juice that Desiree made ?



**14.** The area of right triangle is 35 square inches. If the longer leg is 3 inches longer than the shorter leg, what is the length of the hypotenuse, in inches ?

A. 10

$$\mathsf{B.}\,\frac{\sqrt{35}}{2}$$



D.  $\sqrt{149}$ 

#### Answer: D



**15.** A sphere with a diameter of 2 inches is resting on a table. If the distance from the center of the sphere to the edge of the table is 10 inches, what is the distance, in inches,

between the point where the sphere contacts

the table and the table edge?

A. 
$$4\sqrt{6}$$

B.  $3\sqrt{11}$ 

C. 10

D.  $\sqrt{101}$ 

#### Answer: B



**16.** At Wesley's Pizzeria the small pizza is 4 inches smaller in diameter than the large pizza, whose diameter is 16 inches. If each pizza is cut into eight equal slices, one large slice is approximately what percent larger than one small slice ?

A. 44~%

 $\mathsf{B.}\,62~\%$ 

**C**. 78 %

D. 84%



### Circles

1. Which of the following points in the xy-plane represents the center of the circle defined by the equation  $x^2 + y^2 - 4x - 8y - 16 = 0$ ? A. (-4, -8)

B. (-2, -4)

C.(2,4)

D.(4, 8)

### Answer: C



### **Arc Length And Sectors**

1. A circle with a diameter of 8 inches is divided

into a number of equal sectors such that each

sector has an area of  $\frac{4\pi}{3}$  square inches. What

is the central angle of each sector, in radians

A. 
$$\frac{\pi}{12}$$
  
B.  $\frac{\pi}{6}$   
C.  $\frac{\pi}{3}$   
D.  $\frac{2\pi}{3}$ 

Answer: B

### Watch Video Solution

**Three Dimensional Figures** 

**1.** Marcus's yard has a large square sandbox serving as a cactus bed. The side lenghts of the box are 24 feet, and the box is currently one-third full of sand from the bottom up. Mearcus purchases 480 cubic feet of sand, which, when added to the box, will completely fill it. How many inches deep is the cactus bed ?

A. 10

#### B. 15

C. 20

D. 25

### Answer: B

