

17. In the standard  $(x,y)$  coordinate plane, what is the slope of the line given by the equation  $4x = 7y + 5$ ?

A.  $-\frac{4}{7}$   
 B.  $\frac{4}{7}$   
 C.  $\frac{7}{4}$   
 D. 4  
 E. 7

Rearrange the equation in slope intercept form:

$$4x = 7y + 5$$

$$\frac{4x - 5}{7} = \frac{7y}{7}$$

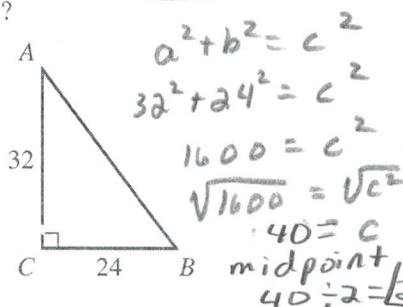
$$\frac{4}{7}x - \frac{5}{7} = y$$

18. For which of the following conditions will the sum of integers  $m$  and  $n$  always be an odd integer?

~~X~~  $m$  is an odd integer.  $3+3=6$   
~~X~~  $n$  is an odd integer.  $3+3=6$   
~~X~~  $m$  and  $n$  are both odd integers.  $3+3=6$  or  $3+5=8$   
~~X~~  $m$  and  $n$  are both even integers.  $2+4=6$   
 K.  $m$  is an odd integer and  $n$  is an even integer.  $3+4=7$   
 $1+2=3$

19. The lengths of the 2 legs of right triangle  $\triangle ABC$  shown below are given in inches. The midpoint of  $\overline{AB}$  is how many inches from A?

A. 16  
 B. 20  
 C. 21  
 D. 28  
 E. 40



20. In  $\triangle DEF$ , the length of  $\overline{DE}$  is  $\sqrt{30}$  inches, and the length of  $\overline{EF}$  is 3 inches. If it can be determined, what is the length, in inches, of  $\overline{DF}$ ?

F. 3  
 G.  $\sqrt{30}$   
 H.  $\sqrt{33}$   
 J.  $\sqrt{39}$   
 K. Cannot be determined from the given information

It is not given that the triangle is a right triangle, so you cannot use the Pythagorean Theorem.

You could draw circle to see this  
 26) to the opposite endpoint from the center. so,  $-1-3=-4$  &  $2-4=-2$

21. Laura plans to paint the 8-foot-high rectangular walls of her room, and before she buys paint she needs to know the area of the wall surface to be painted. Two walls are 10 feet wide, and the other 2 walls are 15 feet wide. The combined area of the 1 window and the 1 door in her room is 60 square feet. What is the area, in square feet, of the wall surface Laura plans to paint?

A. 200  
 B. 340  
 C. 360  
 D. 390  
 E. 400

Total surface area without removing window + door area.

$$2(8 \text{ ft} \times 10 \text{ ft}) = 160 \text{ ft}^2$$

$$2(8 \text{ ft} \times 15 \text{ ft}) = 240 \text{ ft}^2$$

$$= 400 \text{ ft}^2$$

Remove combined area of window and door  
 $400 - 60 = 340 \text{ ft}^2$

22. The length of a rectangle is 5 inches longer than the width. The perimeter of the rectangle is 40 inches. What is the width of the rectangle, in inches?

E. 7.5  
 G. 8  
 H. 15  
 J. 16  
 K. 17.5

$$2W + 2(W+5) = 40$$

$$2W + 2W + 10 = 40$$

$$4W + 10 = 40$$

$$4W = 30$$

$$W = 7.5$$

23. 8% of 60 is  $\frac{1}{5}$  of what number?

A. 0.96  
 B. 12  
 C. 24  
 D. 240  
 E. 3,750

$$.08 \cdot 60 = \frac{1}{5}x$$

$$4.8 = \frac{1}{5}x$$

$$4.8(5) = \frac{1}{5}x(5)$$

$$24 = x$$

24. Armin is trying to decide whether to buy a season pass to his college basketball team's 20 home games this season. The cost of an individual ticket is \$14, and the cost of a season pass is \$175. The season pass will admit Armin to any home basketball game at no additional cost. What is the minimum number of home basketball games Armin must attend this season in order for the cost of a season pass to be less than the total cost of buying an individual ticket for each game he attends?

F. 8  
 G. 9  
 H. 12  
 J. 13  
 K. 20

$x = \#$  of home games he could attend

$$175 \geq 14x$$

$$12.5 \geq x(\text{minimum})$$

$$12.5 \rightarrow 13$$

25.  $\frac{4.8 \times 10^{-7}}{1.6 \times 10^{-11}} = ?$

A.  $3.0 \times 10^4$   
 B.  $3.0 \times 10^{-4}$   
 C.  $3.0 \times 10^{-18}$   
 D.  $3.2 \times 10^{18}$   
 E.  $3.2 \times 10^4$

Just enter into calc. and you should get 30,000, and  $3.0 \times 10^4 = 30,000$

$$3.0 \times 10^4 = 30,000$$

$$\text{or: } = 3.0 \times 10^{-7+(-11)} = 3.0 \times 10^4$$

26. A circle in the standard  $(x,y)$  coordinate plane has center  $C(-1,2)$  and passes through  $A(2,6)$ . Line segment  $\overline{AB}$  is a diameter of this circle. What are the coordinates of point B?

F.  $(-6,-2)$   
 G.  $(-5,-1)$   
 H.  $(-4,-2)$   
 J.  $(4,2)$   
 K.  $(5,10)$

I would just see that to go from -1 to 2 you add 3 and to go from 2 to 6 you add 4 so you do the opposite to rotate or go

27. Which of the following expressions is a factor of  $x^3 - 64$ ?

A.  $x - 4$   
 B.  $x + 4$   
 C.  $x + 64$   
 D.  $x^2 + 16$   
 E.  $x^2 - 4x + 16$

$$a^3 - b^3 = (a-b)(a^2 + ab + b^2)$$

$$= (x-4)(x^2 + 4x + 16)$$

$$x^3 - 64 = (x-4)(x^2 + 4x + 16)$$

GO ON TO THE NEXT PAGE.