

8. When  $x = \frac{1}{2}$ , what is the value of  $\frac{8x-3}{x}$ ?

F.  $\frac{1}{2}$   
 G. 2  
 H.  $\frac{5}{2}$   
 J. 5  
 K. 10

$$= \frac{8(\frac{1}{2}) - 3}{\frac{1}{2}} = \frac{4 - 3}{\frac{1}{2}} = \frac{1}{\frac{1}{2}} = 2$$

*you could change this to a decimal*  
*plug in  $\frac{1}{2}$  for  $x$*

12. In Cherokee County, the fine for speeding is \$17 for each mile per hour the driver is traveling over the posted speed limit. In Cherokee County, Kirk was fined \$221 for speeding on a road with a posted speed limit of 30 mph. Kirk was fined for traveling at what speed, in miles per hour?

F. 13  
 G. 17  
 H. 43  
 J. 47  
 K. 60

$$\frac{221}{17} = 13 \text{ mph over speed limit}$$

$$30 + 13 = 43 \text{ mph}$$

*divide the total by the amount fined per mile over*

9. In the standard (x,y) coordinate plane, what is the midpoint of the line segment that has endpoints (3,8) and (1,-4)?

A. (-2, -12)  
 B. (-1, -6)  
 C.  $(\frac{11}{2}, -\frac{3}{2})$   
 D. (2, 2)  
 E. (4, -12)

$$\text{midpoint} = (\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$$

$$= (\frac{3 + 1}{2}, \frac{8 + (-4)}{2})$$

$$= (\frac{4}{2}, \frac{4}{2})$$

$$= (2, 2)$$

*labeling the points is a good idea*

13. What is the sum of the solutions of the 2 equations below?

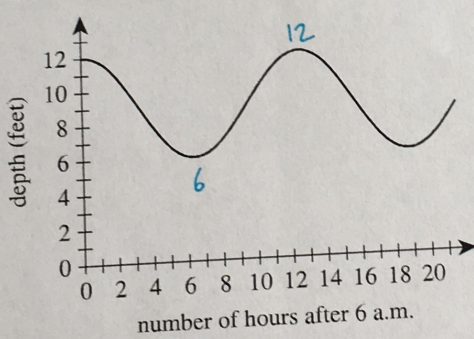
$$\begin{aligned} 8x &= 12 \\ 2y + 10 &= 22 \end{aligned}$$

A.  $2\frac{2}{5}$   
 B.  $7\frac{1}{2}$   
 C. 9  
 D. 10  
 E.  $17\frac{1}{2}$

$$\begin{aligned} 8x &= 12 & 2y + 10 &= 22 \\ x &= \frac{3}{2} & 2y &= 12 \\ & & y &= 6 \end{aligned}$$

*not a system bc each eqn has 1 variable*  
*solve each equation and add the answers*  
*3 + 4 = 7*

10. The fluctuation of water depth at a pier is shown in the figure below. One of the following values gives the positive difference, in feet, between the greatest water depth and the least water depth shown in this graph. Which value is it?



F. 3  
 G. 6  
 H. 9  
 J. 12  
 K. 19

greatest - 12 ft  
 least - 6 ft  

$$12 - 6 = 6$$

14. The average of 5 distinct scores has the same value as the median of the 5 scores. The sum of the 5 scores is 420. What is the sum of the 4 scores that are NOT the median?

F. 315  
 G. 320  
 H. 336  
 J. 350  
 K. 360

$$\text{mean} = \frac{420}{5} = 84$$

$$\text{median} = 84$$

$$420 - 84 = 336$$

*1) find mean*  
*2) it's also the median*  
*3) subtract from total*

15. What is the value of the expression below?

$$|-8 + 4| - |3 - 9|$$

A. -18  
 B. -2  
 C. 0  
 D. 2  
 E. 18

$$= |-4| - |-6| = 4 - 6 = -2$$

*PEMDAS*  
*treat absolute value like a parenthesis*

16. Which of the following expressions is equivalent to  $x^{\frac{2}{3}}$ ?

F.  $\frac{x^2}{3}$   
 G.  $\frac{x(2)}{3}$   
 H.  $\sqrt{x^3}$   
 J.  $\sqrt[3]{x}$   
 K.  $\sqrt[3]{x^2}$

$$= \sqrt[3]{x^2}$$

*numerator goes under the radical sign*  
*denominator goes in front of the radical sign*

11. What is the slope of the line through (-2,1) and (2,-5) in the standard (x,y) coordinate plane?

A.  $\frac{3}{2}$   
 B. 1  
 C. -1  
 D.  $-\frac{3}{2}$   
 E. -4

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{-5 - 1}{2 - (-2)} = \frac{-6}{4} = -\frac{3}{2}$$

*label points*  
*double minus sign changes it to a plus sign: 2 + 2*

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