

Name: Key Final Review #6

1. What value for the constant,  $h$ , in the equation shown below will result in an infinite number of solutions?

$$6x + 18 = h(3x + 9)$$

$$6x + 18 = \underline{2}(3x + 9)$$

A. -2

B. -3

C. 2

D. 3

2. Paula has some blue and black pens in her bag. The number of blue pens she has is three more than twice the number of black pens. She has 42 pens in all. How many blue pens does Katherine have?

A. 13

B. 15

C. 29

D. 33

$$\text{Black} = x$$

$$\text{Blue} = 2x + 3$$

$$\begin{array}{r} 3x + 3 = 42 \\ -3 \quad -3 \\ \hline \end{array}$$

$$\begin{array}{r} 3x = 39 \\ \underline{3} \quad \underline{3} \\ x = 13 \end{array}$$

3. Write the equation of the line that passes through the points and  $(5, -21)$  and  $(-2, 7)$ .

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 21}{-2 - 5} = \frac{28}{-7} = -4$$

$$y = mx + b$$

$$7 = -4(-2) + b$$

$$7 = 8 + b$$

$$\begin{array}{r} -8 \quad -8 \\ \hline \end{array}$$

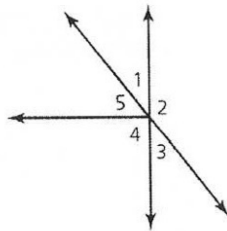
$$-1 = b$$

$$y = -4x - 1$$

Use the diagram below to answer the following questions.

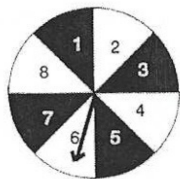
4. Which pair of angles are considered supplementary?  $\angle 2$  and  $\angle 3$

5. Which pair of angles are considered complementary?  $\angle 1$  and  $\angle 5$



6. Raya is conducting an experiment. She spins the spinner shown 100 times.

What is the **best prediction** of the number of times she will spin a 2?



A. 6

$$\frac{1}{8} = \frac{x}{100}$$

B. 50

$$\frac{x}{8} = \frac{100}{8}$$

C. 12

$$x = 12.5$$

D. 1

7. Mr. Burmeister randomly surveys 40 of his students. Of those, 18 participate in an after school activity. If Mr. Burmeister has a total of 140 students, how many would you expect to participate in an after school activity?

$$\frac{18}{40} = \frac{x}{140}$$

$$40x = 18(140)$$

$$\frac{40x}{40} = \frac{2520}{40}$$

$$x = 63 \text{ students}$$

8. A builder needs to add diagonal braces to a wall. The wall is 16 feet wide by 12 feet high. What is the length of each brace?

$$a^2 + b^2 = c^2$$

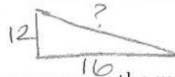
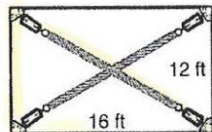
$$12^2 + 16^2 = c^2$$

$$144 + 256 = c^2$$

$$\sqrt{400} = \sqrt{c^2}$$

$$20 = c$$

20 ft



9. The excavation for a house and the trucks to carry away the material have the dimensions shown. About how many level truck loads are necessary to remove all the dirt?

$$V = lwh$$

$$= (11)(14.5)(4)$$

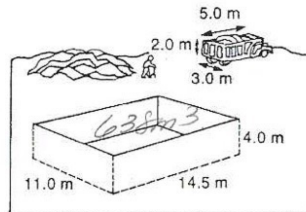
$$V = 638 \text{ m}^3$$

Truck

$$V = lwh$$

$$= (3)(3)(3)$$

$$V = 30 \text{ m}^3$$



but need  $\frac{638}{30} = 21.2\bar{6}$  21 level truck loads to remove all dirt.

10. Draw box and whisker for the given data:

35, 60, 20, 80, 95, 15, 40, 85, 75

State the 5 points and find the IQR.

LE = 15  
 $Q_1 = 27.5$   
 med = 60  
 $Q_3 = 82.5$   
 UE = 95

