Keystone Review Name: _____

Practice Test 2 Date: _____ Period: _____

Keystone Exam… Practice Test # 2

<u>Part 1</u> – Multiple Choice

_____ 1) The math club has $600 to spend on supplies. The club spends $115 on a TI-84 graphing calculator. New pocket protectors cost $5 each. The inequality $115+5p \le 600$ can be used to determine the number of new pocket protectors (*p*) that the club can purchase. Which statement about the number of pocket protectors can be purchased is true?

A) The team can purchase 97 pocket protectors.

B) The minimum number of new pocket protectors that can be purchased is 115.

C) The maximum number of new pocket protectors that can be purchased is 115.

D) The math club can purchase 115 new pocket protectors, but this number is neither the maximum or minimum.

_____ 2) What are the solutions of the inequality shown below?

$$-\frac{2}{5}x-9<\frac{9}{10}$$

A) $x>-24\frac{3}{4}$ B) $x<10\frac{3}{10}$

C) $x>6\frac{3}{4}$ D) $x<-24\frac{3}{4}$

_____ 3) Simplify: $\dfrac{-2x^3+4x^2+16x}{-2x^3+18x^2-40x}$; $x \neq 0$, 4 , 5

A) $\frac{2}{9}x^2-\frac{2}{5}x$ B) $x^3+\frac{2}{9}x^2-\frac{2}{5}x$

C) $\dfrac{(x+4)(x-2)}{(x-5)(x-4)}$ D) $\dfrac{x+2}{x-5}$

_____ 4) Find the greatest common factor (GCF) for the two polynomials.

$$300ab^2c$$
$$500a^2bc^3$$

A) $100abc$

B) $100a^2b^2c$

C) $1500abc$

D) $1500a^2b^2c^3$

_____ 5) Which values of *x* makes $3\sqrt{38x}$ equivalent to $6\sqrt{19}$?

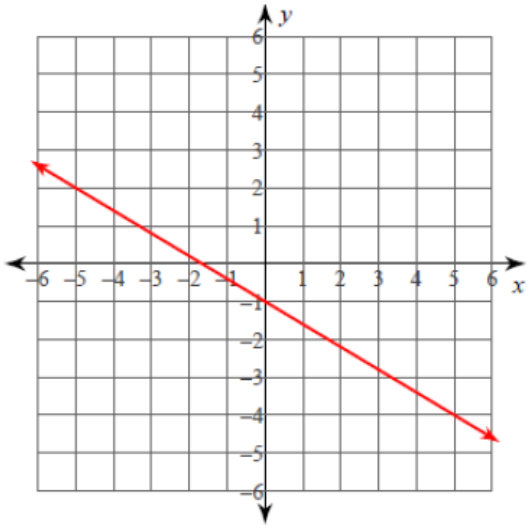
A) $x = \frac{1}{2}$

B) $x = 2$

C) $x = 3$

D) $x = 6$

_____ 6) A linear equation is graphed below.



Which equation describes the graph?

A) $y = -\frac{3}{5}x - 1$

B) $y = \frac{3}{5}x - 1$

C) $y = -\frac{3}{5}x - 1.5$

D) $y = -\frac{5}{3}x - 1$

_____ 7) A college student charges a fee for typing term papers. He uses the formula below where *n* represents the number of pages and *c* represents the cost he charges.

$$c = 8 + 0.15n$$

Which phrase best describes how he charges his customers?

A) \$0.08 plus \$0.15 per page

B) \$8.15 for each page

C) \$0.15 for each page

D) \$8 plus \$0.15 per page

_____ 8) Jamal is told that it costs \$24 plus a certain amount per day to rent a car. He finds that a friend rented a car from this company for \$144 for 3 days. Which linear equation represents the company's charge in terms of the number of days?

A) $y = 48x$ B) $y = 24 + 48x$

C) $y = 40 + 24x$ D) $y = 40x + 24$

_____ 9) The amount a plumber charges is given by the equation $y = 10x + 15$. What is a reasonable range for this situation?

A) All real numbers greater than or equal to 0
B) All real numbers greater than or equal to 10
C) All real numbers greater than or equal to 15
D) All real numbers less than or equal to 0

_____ 10) Simplify: $3 \cdot \left(3\sqrt{27}\right)^{-1}$

A) $-243\sqrt{3}$ B) $-54\sqrt{3}$

C) $\frac{\sqrt{3}}{3}$ D) $\frac{\sqrt{3}}{9}$

_____ 11) The Basketball Boosters Club plans a pancake supper to raise $1,200. They can serve 240 people. They will charge $6 for adult tickets and $2 for children's tickets. How many adult and children tickets should they sell to make $1,200?

A) 160 adult tickets and 80 student tickets
B) 60 adult tickets and 180 student tickets
C) 180 adult tickets and 60 student tickets
D) 200 adult tickets and 40 student tickets

_____ 12) Solve: $|5x-4|=19$

A) $x=-\frac{23}{5}$ *or* $x=\frac{23}{5}$

B) $x=-3$ *or* $x=\frac{23}{5}$

C) $x=-\frac{1}{5}$ *or* $x=\frac{39}{5}$

D) $x=3$ *or* $x=\frac{23}{5}$

_____ 13) Two cellular phone companies offer different billing methods. Company A charges $10 a month plus $0.18 per minute. Company B charges $0.10 per minute plus $30. If *d* represents the charge in dollars and *m* represents the number of minutes, which system of equations could be used to determine the number of minutes for which the companies charge the same amount?

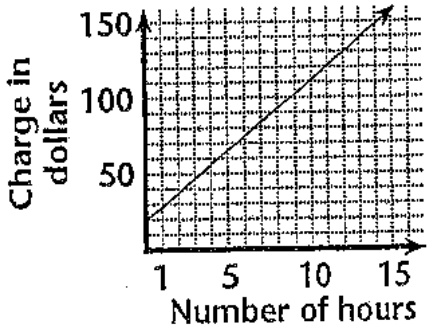
A) $\begin{aligned} d &= 18m+10 \\ d &= 10m+30 \end{aligned}$

B) $\begin{aligned} d &= 0.18m+10 \\ d &= 0.10m+30 \end{aligned}$

C) $\begin{aligned} d &= 10.18m \\ d &= 30.10m \end{aligned}$

D) $\begin{aligned} d &= 10m+0.18 \\ d &= 30m+0.10 \end{aligned}$

_____ 14) The graph shows the amount that a person was charged for skating lessons in terms of the number of hours of lessons. What does the *y*-intercept represent in this situation?



A) The person paid a fixed fee of $20 in addition to the hourly rate.
B) The person paid $20 per hour.
C) The person paid $20 for each lesson.
D) The person paid $10 per hour.

_____ 15) Which expression cannot be factored as a product of two binomials?

A) $y^2 + 3y - 4$ B) $y^2 + 4y + 5$

C) $8(y-2) - y(y-2)$ D) $y^2 + 7y + 10$

_____ 16) A paint store sells exterior paint for $35.75 a gallon and paint rollers for $6.00 each. Write an equation in standard form for the number of gallons *p* of paint and rollers *r* that a customer could buy with $190.

A) $35.75 + 6 = p$ B) $35.75r + 6p = 190$

C) $35.75p + 6r = 190$ D) $35.75p = 6r + 190$

_____ 17) Write the equation of a line that is perpendicular to $y = \frac{7}{8}x - \frac{3}{2}$ and passes through the point (-4 , 2).

A) $y = -\frac{8}{7}x - \frac{3}{2}$ B) $y = \frac{8}{7}x - \frac{3}{2}$

C) $y = -\frac{8}{7}x - \frac{18}{7}$ D) $y = \frac{8}{7}x - \frac{18}{7}$

_____ 18) A data set contains the numbers 691 , 313 , 324 , 244 , and 244. What will happen to the mean and median of this data set, if the number 486 is added to the list?

A) The mean and the median will both increase.
B) The mean and the median will both decrease.
C) The mean will increase and the median will decrease.
D) The mean will decrease and the median will increase.

_____ 19) In a sample of 50 randomly selected students at a school, 38 students eat breakfast every morning. There are 652 students in the school. Using these results, predict the number of students that eat breakfast.

A) 76 B) 123

C) 247 D) 496

_____ 20) What is the name of the property shown from step 1 to step 2?

Step 1:	$10x-3+5x$	$=10x+(-3)+5x$
Step 2:		$=10x+5x+(-3)$
Step 3:		$=10x+5x+(-3)$
Step 4:		$=15x+(-3)$
Step 5:		$=15x-3$

A) Commutative Property of Addition

B) Distributive Property

C) Associative Property of Addition

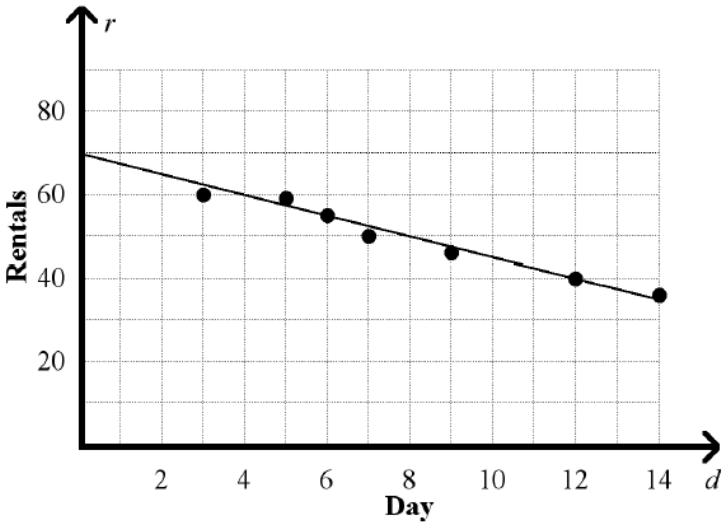
D) Identity Property of Addition

_____ 21) Given the function $f(x)=2-3x$, what is $f(-4)$?

A) -10 B) 2

C) 4 D) 14

_____ 22) The scatter plot shows the trend for the number of cars a company rents during a two-week period. Which equation best models the data in the scatter plot?



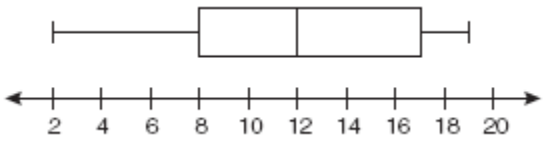
A) $y=-\frac{2}{5}x+70$ B) $y=\frac{2}{5}x+70$

C) $y=-\frac{5}{2}x+70$ D) $y=\frac{5}{2}x-70$

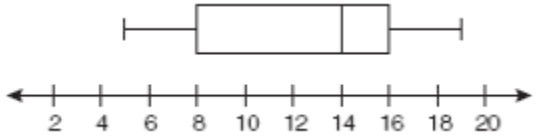
_____ 23) The data set below represents the number of hours spent on the Internet in a week by students in a mathematics class. Which box-and-whisker plot represents this data?

6 , 14 , 19 , 5 , 12 , 19 , 7 , 8 , 17 , 17 , 10 , 9 , 18 , 9 , 9

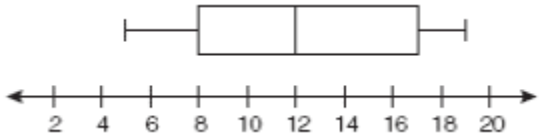
A)



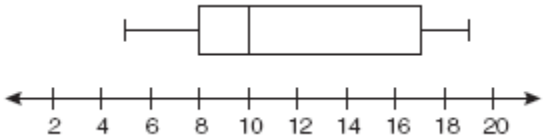
B)



C)



D)



<u>Part 2</u> – Constructed Response

24) Students are raising money for a field trip by selling scented candles and specialty soap. The candles cost $0.75 each and will be sold for $1.75. The soap costs $1.25 per bar and will be sold for $3.25. the students need to raise at least $200 to cover their trip costs.

A) Write an inequality that relates the number of candles *c* and the number of bars of soap *s* to the needed income.

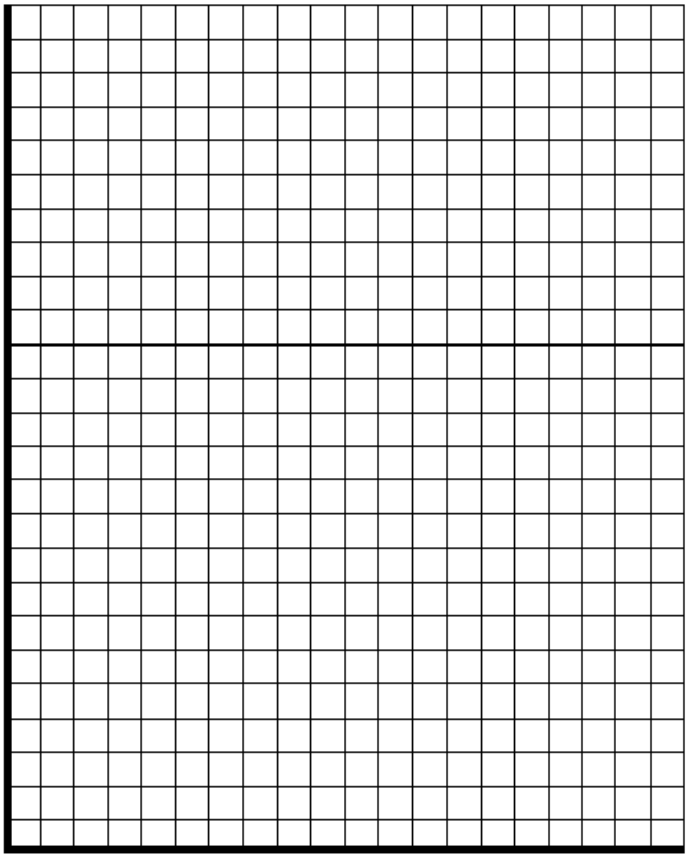
Inequality: _____

B) The wholesaler can supply no more than 80 bars of soap and no more than 140 candles. Write an inequality for each of these constraints.

Soap Constraint: _____

Candle Constraint: _____

C) Graph the inequalities from part A and part B using the number of candles on the vertical axis and the number of bars of soap on the horizontal axis. Label your graph using these conditions and use a scale of 10 on each axis.



D) Explain what the shaded area of your graph represents.

Explanation:

25) Betty is making crafts to sell at a benefit. It takes her $\frac{3}{4}$ of an hour to make a decorative pillow, x, and $\frac{1}{2}$ hour to make a wreath, y. She has 6 hours to work.

A) Define your variables in words.

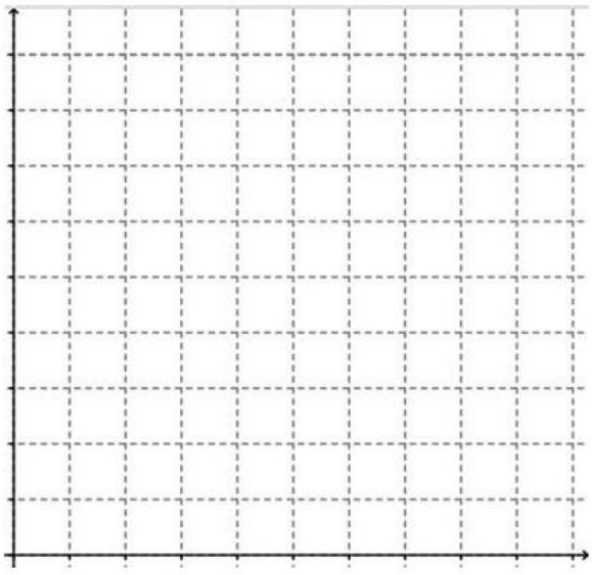
Let x = _____

Let y = _____

B) Write an equation to show the relationship between how many pillows, x, and wreaths, y, Betty can make in 6 hours.

Equation: _____

C) Graph the function you wrote from **part B**. Also label and scale both the x-axis and y-axis.



D) What is the *x*-intercept? What does it represent in this situation?

Explanation:

x-intercept: _____

E) What is the *y*-intercept? What does it represent in this situation?

Explanation:

y-intercept: _____

F) If Betty makes 3 wreaths, how many decorative pillows can she make in the time she has left?

Pillows: _____

26) A physical education class is playing a variation of basketball. When a team makes a basket from inside the three-point line, the team gets a "Climb" (C) , or 2 points. When a team makes a basket from outside the three-point line, the other team gets a "Slide" (S) , or -1 point.

A) During the first 20 minutes of the game, a team gets the following:

C , C , S , S , C , S , C , C , and S

Simplify the expression to determine the team's score.

Score: _____

B) The points scored by two teams during a game are shown in the table below. Which team won the game **and** by how many did they win by?

Game Results	
Team 1	**Team 2**
C	C
S	C
S	C
S	S
S	S
C	S
C	S
C	S

Winning Team: _____

Margin of Victory: _____

C) Diego's team gets 3 Climbs and 2 Slides, but not necessarily in that order. Write a variable expression that could be used to find his team's score.

Expression: _____

D) After four consecutive baskets are made, Leann's team's score is -8. After the next basket is made, the team's score is -6. Write an equation for the last basket made.

Equation: _____

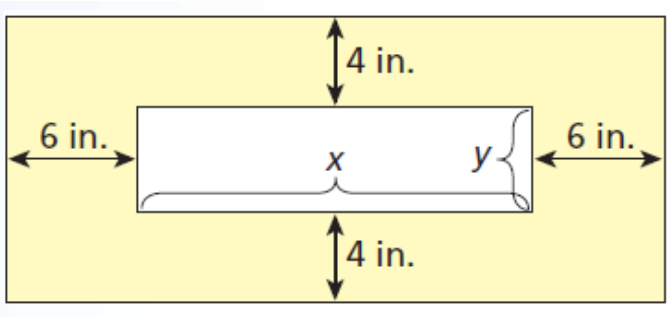
E) Daryl's team finishes the game with a score of 12 . If his team scored 9 times, how many Climbs did the team get?

# of Climbs: _____

F) Is it possible to finish with a score of 2 after five baskets are made? Explain your reasoning.

Explanation:

27) Mr. Jones is a contractor who remodels kitchens. He drew the figure below to help calculate the dimensions of a countertop surrounding a sink that is *x* inches long and *y* inches wide.



A) Write and simplify a polynomial that Mr. Jones can use to find the perimeter of the outer edge of the countertop.

Polynomial: _____

B) Someone orders a countertop for a sink that is 18 inches long and 12 inches wide. Mr. Jones puts tape around the outer edge of the countertop to protect it while it is being moved. Use the polynomial from **part A** to determine how many inches of tape are needed.

Tape (inches): _____

C) Write a polynomial that Jones can use to find the area of the countertop for any size sink.

Polynomial: _____

D) The marble for the countertop costs $1.25 per square inch. Write a polynomial that gives the cost of the countertop.

Polynomial: _____

E) Find the cost of the countertop for the 18-inch by 12-inch sink. Explain your answer.

Explanation:

Cost: _____