

Keystone Exam... Practice Test Extra**Part 1 – Multiple Choice**

_____ 1) A Halloween attraction charges \$52 for each day pass and \$95 for each night pass. Last October, 86 day passes were sold and 1,245 night passes were sold. What is the closest estimate of the total amount of money paid for the passes last October?

A) \$120,000

B) \$130,000

C) \$140,000

D) \$150,000

_____ 2) For what value of x should the expression be further simplified?

$$\sqrt{5x}$$

A) $x = 2$ B) $x = 10$ C) $x = 11$ D) $x = 13$

_____ 3) What is the y -intercept of the graph $6x - 3y = 24$?

A) -8 B) 2 C) -3 D) 24

_____ 4) Solve $S = \pi rL + \pi r^2$ for L .

A) $L = S - r$ B) $L = \frac{S}{\pi r} - r$ C) $L = r - \frac{S}{\pi r}$ D) $L = \frac{S}{\pi r^2} - r$

_____ 5) The amount that Phil charges for his service is a linear function of the number of hours that he works. The service charge represents the y -intercept of the graph for the linear equation. The table shows the amount for various hours of work.

Number of Hours	2	4	7	9
Charge	31	47	71	87

How much is his service charge?

A) \$15

B) \$8

C) \$16

D) \$29

_____ 9) Which property of equality justifies step f ?

- a. $26 = -16 - 8x$
- b. $26 = -16 + (-8x)$
- c. $26 + 16 = -16 + (-8x) + 16$
- d. $26 + 16 = -16 + 16 + (-8x)$
- e. $42 = -8x$
- f. $\frac{42}{-8} = \frac{-8x}{-8}$
- g. $-\frac{21}{4} = x$

- A) Multiplication Property of Equality
- B) Subtraction Property of Equality
- C) Division Property of Equality
- D) Addition Property of Equality

_____ 10) A polynomial expression is shown below.

$$(mx^2 - 1)(3x^2 - 6x + 4) - (9x^4 + 4x^2)$$

The expression is simplified to $-18x^3 + 5x^2 + 6x - 4$. What is the value of m ?

- A) 1
- B) -3
- C) 3
- D) -1

_____ 11) A local citizen wants to fence a rectangular community garden. The length of the garden should be at least 110 feet and the distance around should be no more than 380 feet. Which system of inequalities models the possible dimensions of the garden?

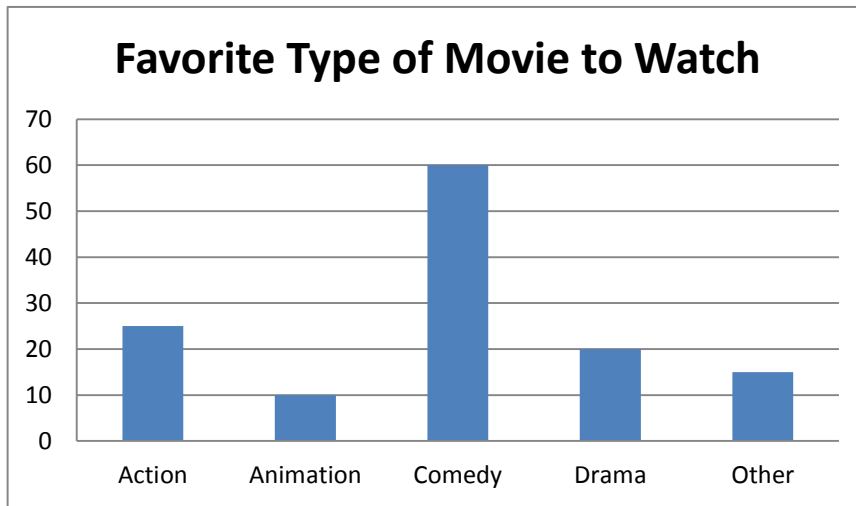
- A) $y \geq 110$
 $2x + 2y \leq 380$
- B) $y \leq 110$
 $2x + 2y \leq 380$
- C) $y \geq 110$
 $2x + 2y \geq 380$
- D) $y \leq 110$
 $2x + 2y \geq 380$

_____ 12) A polling firm, hired to estimate the likelihood of the passage of an upcoming referendum, obtained the set of survey responses to make its estimate. The encoding system for the data is 1 = FOR, 2 = AGAINST. If the referendum were held today, estimate the probability that it would pass.

1, 2, 2, 1, 1, 2, 1, 2, 2, 1, 1, 1, 2, 1, 2, 1, 1, 1, 2, 1

- A) 0.5
- B) 0.65
- C) 0.6
- D) 0.4

- _____ 13) Keith asked 130 students to select their favorite type of movie to watch and then recorded the results in the graph below.



Keith will ask another 75 students to select their favorite type of movie to watch. Based on the information in the graph, approximately how many more students of the next 75 will select comedy movies rather than action movies?

- A) 35
B) 14
C) 20
D) 46

- _____ 14) Which is the equation of the line through the point $(2, 3)$ with a slope of $\frac{1}{2}$?

- A) $y = \frac{1}{2}x + 3$
B) $y = \frac{1}{2}x + 4$
C) $y = \frac{1}{2}x + 2$
D) $y = \frac{1}{2}x - 3$

- _____ 15) The table shows the wholesale cost and the retail cost of various books in a store. Let w represent the wholesale cost and r represent the retail cost. What is the relationship between the wholesale cost and the retail cost?

Wholesale Cost	2.90	3.20	4.70	5.50	6.80
Retail Cost	4.40	4.70	6.20	7.00	8.30

- A) $r = w + 1.50$
B) $r = w - 1.50$
C) $r = 1.50w$
D) $w = 1.50r$

_____ 16) The function $j(x) = 39x$ represents the number of jumping jacks $j(x)$ you can do in x minutes. How many jumping jacks can you do in 5 minutes?

A) 195

B) 144

C) 7

D) 234

_____ 17) The Henson family are fencing a rectangular portion of their lot. They decide to make the length 12 feet longer than the width. They can afford 240 feet of fencing. What should be the dimensions?

A) 66 ft x 78 ft

B) 54 ft x 42 ft

C) 54 ft x 66 ft

D) 78 ft x 66 ft

_____ 18) A student scored 83 and 91 on her first two quizzes. Write and solve a compound inequality to find the possible values for a third quiz score that would give her an average between 85 and 90.

A) $85 \leq \frac{83+91+n}{3} \leq 90 ; 81 \leq n \leq 96$

B) $85 \leq \frac{83+91}{3} + n \leq 90 ; -2 \leq n \leq 3$

C) $90 \leq \frac{83+91+n}{3} \leq 85 ; 96 \leq n \leq 81$

D) $83 \leq \frac{85+91+n}{3} \leq 90 ; 73 \leq n \leq 94$

_____ 19) Kendra owns a restaurant. She charges \$3.00 for 2 eggs and one piece of toast, and \$1.80 for one egg and one piece of toast. How much does Kendra charge for an egg? A piece of toast?

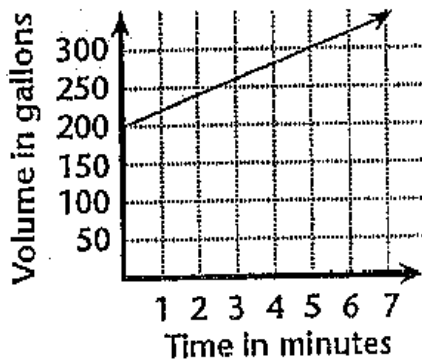
A) \$1.20 per egg and \$0.60 for a piece of toast

B) \$0.60 per egg and \$1.20 for a piece of toast

C) \$0.60 per egg and \$0.60 for a piece of toast

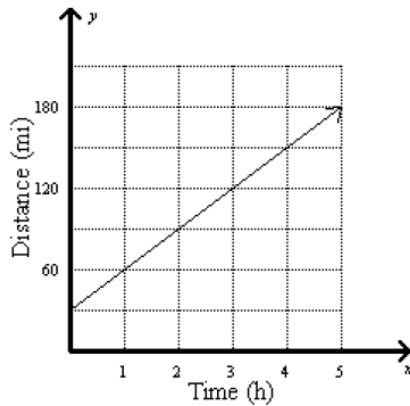
D) \$1.20 per egg and \$1.20 for a piece of toast

- 20) The graph shows the level of water in a tank as a function of the time which has elapsed since measurement began. What does the slope of this line mean?



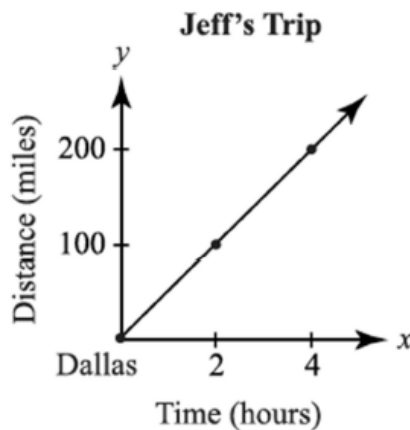
- A) the amount of water in the tank when they began timing
- B) the amount of water in the tank after 1 minute
- C) the rate at which the water was poured in the tank
- D) the amount of water poured in the tank

- 21) Find the rate of change. What does the rate of change mean in this situation?



- A) 60 ; 1 hour to move 60 miles
- B) 60 ; the speed is 60 miles per hour
- C) 30 ; 1 hour to move 15 miles
- D) 30 ; the speed is 30 miles per hour

- 22) Jeff drove at a constant speed from Dallas to his home. The graph below shows his distance from Dallas as a function of time. If David drove the same route at a constant but slower speed, how would the slope of the graph of David's trip compare to the slope of the graph of Jeff's trip?



- A) The slope of David's graph would be zero.
- B) The slope of David's graph would be less than that of Jeff's graph.
- C) The slope of David's graph would be the same as that of Jeff's graph.
- D) The slope of David's graph would be greater than that of Jeff's graph.

Part 2 – Constructed Response

27) Bethany and Calista are sisters who both run marathons. Today they are racing against each other in the same marathon. Because there are thousands of people racing, Bethany and Calista are assigned random starting positions. Bethany starts at the starting line, while Calista starts a half-mile behind the starting line. Calista runs one mile in 12 minutes, while Bethany runs one mile in 15 minutes. So, although Calista starts behind Bethany, she hopes to pass her sister at some point during the race. Let x represent the amount of time in hours that Bethany or Calista run and let y represent distance after the starting line in miles.

A) The rate of speed at which someone runs is frequently stated in miles per hour. Find Bethany's speed and Calista's speed in miles per hour.

Bethany: _____

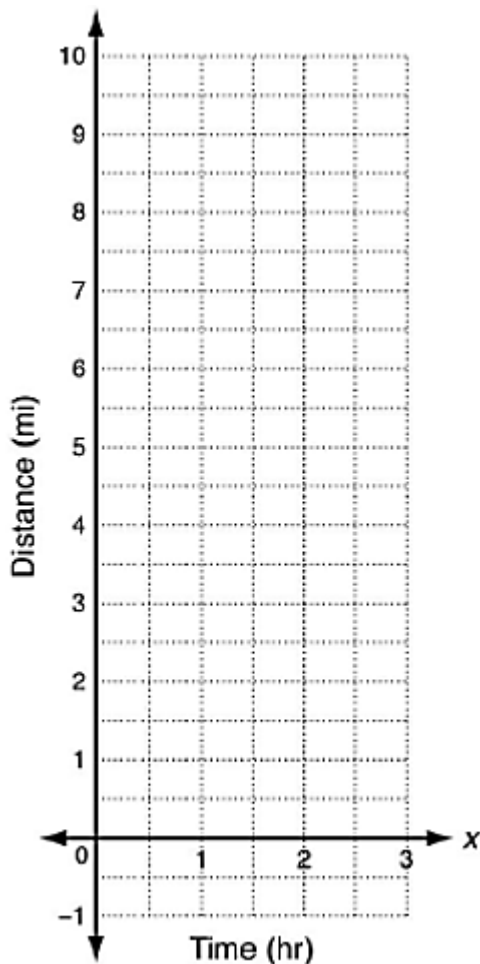
Calista: _____

B) Write a linear equation in slope-intercept form that describes distance as a function of time for both Bethany and Calista.

Bethany: _____

Calista: _____

C) Graph the system of equations that you wrote from part B on the provided grid.



D) Use your graph from part C to estimate each of the following questions.

- Who is in the lead after 15 minutes? _____

- At what time will Calista catch up with Bethany? _____

- How far after the starting line will the sisters catch up to each other?

- Who is in the lead after 2 hours if each sister keeps running at a steady pace?

E) A marathon is 26.2 miles. Which sister do you think will cross the finish line first? Explain.

Explanation:

28) Jack's family is on a car trip.

When they are 84 miles from home, Jack begins recording their distance driven each hour in the table below.

Distance by Hour

Time in Hours	Distance in Miles
0	84
1	146
2	208
3	270

The pattern continues.

A) Write an equation to find distance driven in miles (d) after a given number of hours (h).

Equation: _____

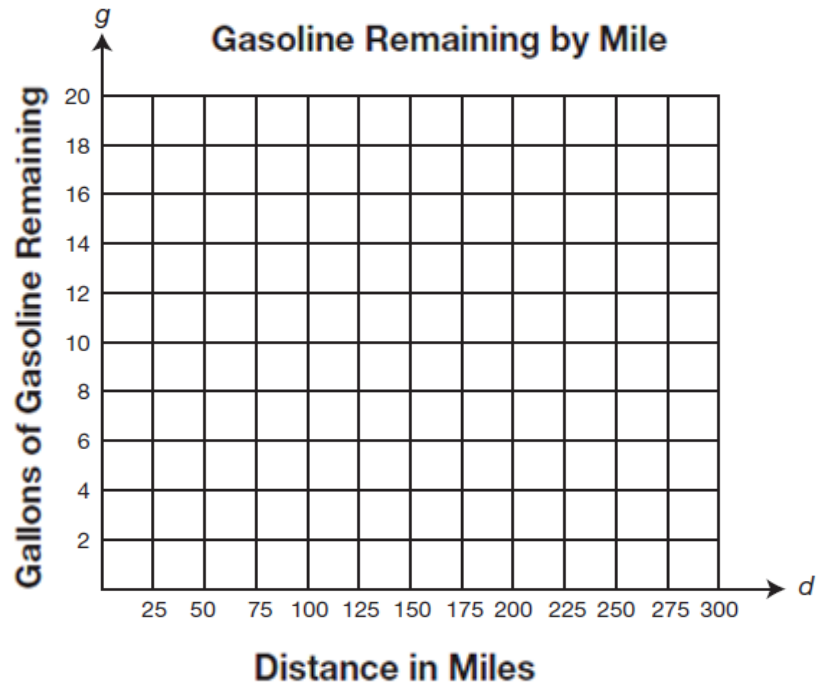
B) Jack also kept track of the remaining gasoline. The equation shown below can be used to find the gallons of gasoline remaining (g) after distance driven (d).

$$g = 16 - \frac{1}{20}d$$

Use the equation to find the missing values for gallons of gasoline remaining.

Distance Driven in Miles (d)	Gallons of Gasoline Remaining (g)
100	
200	
300	

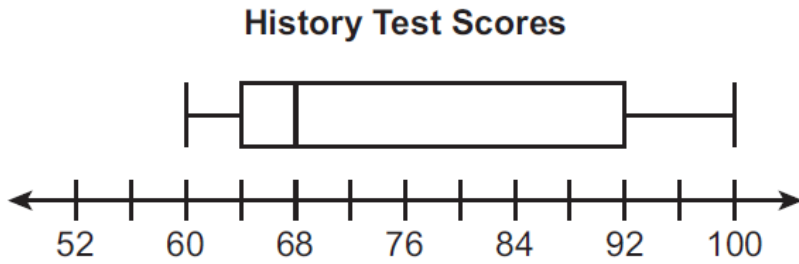
C) Draw the graph of the line formed by the points in the table from **part B**.



D) Explain why the slope of the line drawn in **part C** must be negative.

Explanation:

- 29) The box-and-whisker plot shown below represents students' test scores on Mr. Tyson's test.



- A) What is the range of scores for the history test? What is the inter-quartile range?

Range: _____

Inter-Quartile Range: _____

- B) What is the **best** estimate for the percent of students scoring greater than 92 on the test?

Percent (%): _____

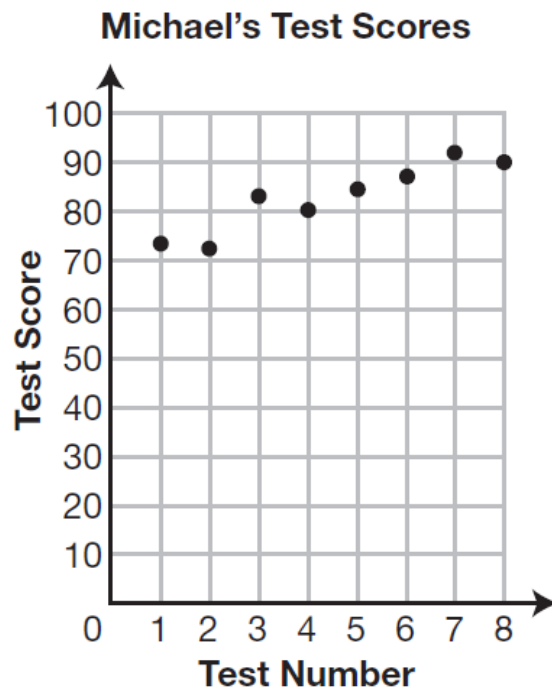
Mr. Tyson wanted more than half of the students to score 75 or greater on the test.

C) Explain how you know that more than half of the students did **not** score greater than 75.

Explanation:

Michael is a student in Mr. Tyson's class. The scatter plot below shows Michael's test scores for each test given by Mr. Tyson.

D) Draw a line of best fit on the scatter plot below.



E) Write an equation in slope-intercept form of the line of best fit you drew in **part D**.

Equation: _____