Name _____

Summer Work for Math 8 pt 1

Directions: Answer each question. You must show your work or provide an explanation for your answer choice to receive full credit.

1. Evaluate $a + b$ for $a = 34$ and $b = -6$.

Ⓐ 28 Ⓒ -28

Ⓑ 40 Ⓓ -40

2. A triangle has sides with lengths of $5x - 7$, $3x - 4$, and $2x - 6$. What is the perimeter of the triangle?

Ⓐ $10x - 17$ Ⓒ $4x - 9$

Ⓑ $6x - 17$ Ⓓ $-7x$

3. Which of the following ratios does *not* form a proportion?

Ⓐ $\frac{28}{49} \stackrel{?}{=} \frac{4}{7}$ Ⓒ $\frac{4}{7} \stackrel{?}{=} \frac{16}{35}$

Ⓑ $\frac{4}{7} \stackrel{?}{=} \frac{16}{28}$ Ⓓ $\frac{4}{7} \stackrel{?}{=} \frac{20}{35}$

4. For a sale, a store decreases its prices on all items by 25%. An item that cost \$120 before the sale now costs \$120 − 0.25(\$120). What is another expression for the sale price?

Ⓐ \$120 − 25 Ⓒ 0.25(\$120)

Ⓑ 0.75(\$120) Ⓓ \$120 − 75

5. Write an equation that models the situation and find its solution.

It's going to be Lindsay's birthday soon, and her friends Mary, Mikhail, Anne, Kim, Makoto, and Isabel have contributed equal amounts of money to buy her a present. They have \$36.00 to spend between them. Determine how much each contributed.

Ⓐ $6x = \$36.00$; $x = \$108.00$ Ⓒ $6x = \$36.00$; $x = \$216.00$

Ⓑ $7x = \$36.00$; $x = \$5.14$ Ⓓ $6x = \$36.00$ $x = \$6.00$

6. Solve $4(a + 4) - 2 = 34$.

Ⓐ $a = -5$ Ⓒ $a = 5$

Ⓑ $a = 8$ Ⓓ $a = -8$

7. Four sisters bought a present for their father. They received a 10% discount on the original price of the gift. After the discount was taken, each sister paid \$9.00. What was the original price of the gift?

Ⓐ \$40.00 Ⓒ \$16.00

Ⓑ \$36.00 Ⓓ \$32.73

8. Justin is redoing his bathroom floor with tiles measuring 6 in. by 13 in. The floor has an area of 8,500 in^2. What is the least number of tiles he will need?

Ⓐ 448 tiles Ⓒ 109 tiles

Ⓑ 108.97 tiles Ⓓ 108 tiles

9. One winter day, the temperature ranged from a high of 20 °F to a low of −25 °F. By how many degrees did the temperature change?

Ⓐ −5 °F Ⓒ −15 °F

Ⓑ 55 °F Ⓓ 45 °F

10. Terry drove 310 miles in 5 hours at a constant speed. How long would it take him to drive 403 miles at the same speed?

Ⓐ 3 hours Ⓒ 7 hours

Ⓑ 6.5 hours Ⓓ 62 hours

11. 128 is 74% of what number? If necessary, round your answer to the nearest hundredth.

Ⓐ 0.58 Ⓒ 1.73

Ⓑ 94.72 Ⓓ 172.97

12. Tell whether the data show a direct variation. If so, identify the constant of variation.

Number of Baskets	Cost
5	$15
7	$21
9	$27
13	$39
15	$45

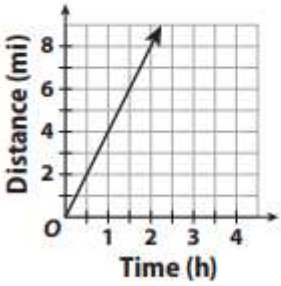
Ⓐ direct variation; $k = \frac{1}{3}$

Ⓑ not a direct variation

Ⓒ direct variation; $k = 3$

Ⓓ direct variation; $k = 10$

13. The graph shows the distance Jamie walks over time. Does she walk at a constant or variable speed? How fast is Jamie walking?



Ⓐ variable speed; 8 mi/h

Ⓑ constant speed; 4 mi/h

Ⓒ constant speed; 2 mi/h

Ⓓ constant speed; 8 mi/h

14. Darryl is reading a book at the rate of 4.5 pages per minute. What ordered pair on a graph of his reading rate would represent the number of minutes it would take him to read 90 pages?

Ⓐ (20, 90)

Ⓑ (4.5, 20)

Ⓒ (90, 4.5)

Ⓓ (4.5, 90)

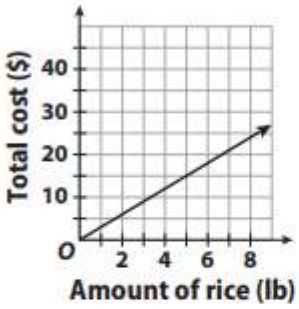
Mini-Tasks

15. The water level in a plastic pool changed by –8 gallons each hour due to a small hole in the bottom. After 6 hours, the pool contained 132 gallons. How much water was in the pool originally?

16. The ratio of adults to children attending a new exhibit at the museum was found to be 8:5. Based on this ratio, if 390 people attended one day, how many would be children?

Performance Task

17. The graph shows the relationship between the total cost and the number of pounds of rice purchased.



Part A: What does (6, 18) represent?

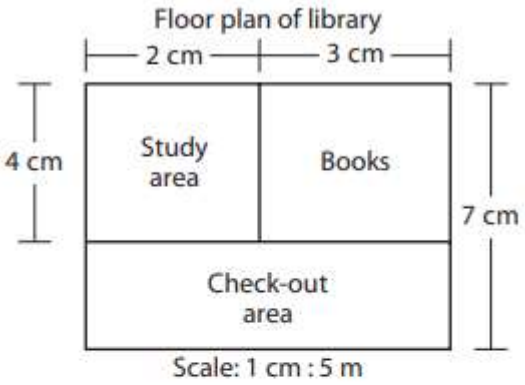
Part B: Which point represents the unit price?

Part C: How many pounds would you have to buy for the total to be $12? Explain how to find the answer.

Math 8 Summer Work pt 2

Directions: Answer each question. You must show your work or provide an explanation for each in order to receive full credit.

1. What are the actual dimensions of the Check-out Area?



Ⓐ 25 m × 15 m Ⓒ 15 m × 35 m

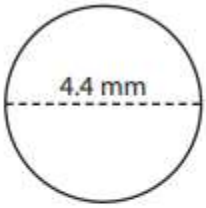
Ⓑ 15 m × 20 m Ⓓ 2 m × 4 m

2. For a history fair, a school is building a circular wooden stage that will stand 2 feet off the ground. Find the area of the stage if the radius of the stage is 19 feet. Use 3.14 for π.

Ⓐ 1,133.54 ft^2 Ⓒ 2,267.08 ft^2

Ⓑ 119.32 ft^2 Ⓓ 4534.16 ft^2

3. Find the area of the circle to the nearest tenth. Use 3.14 for π.



Ⓐ 47.7 mm^2 Ⓒ 60.8 mm^2

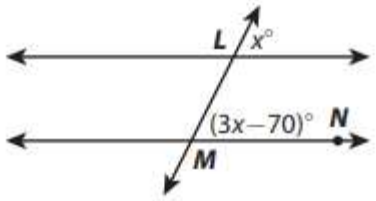
Ⓑ 15.2 mm^2 Ⓓ 13.8 mm^2

4. What is the solution of the inequality $-0.4x - 1.2 > 0.8$?

Ⓐ $x < -5$ Ⓒ $x < -0.8$

Ⓑ $x < -1$ Ⓓ $x > 5$

5. Find $m\angle LMN$.



Ⓐ $m\angle LMN = 40°$ Ⓒ $m\angle LMN = 35°$

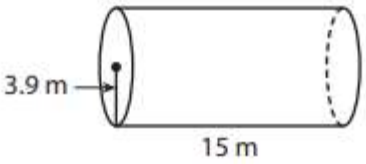
Ⓑ $m\angle LMN = 45°$ Ⓓ $m\angle LMN = 50°$

6. Ralph is an electrician. He charges an initial fee of $32, plus $33 per hour. If Ralph earned $197 on a job, how long did the job take?

Ⓐ 5.1 hours Ⓒ 5 hours

Ⓑ 132 hours Ⓓ 4 hours

7. Find the volume of the cylinder. Use 3.14 for π. Round your answer to the nearest tenth.



Ⓐ 183.7 m^3 Ⓒ 2,865.6 m^3

Ⓑ 716.4 m^3 Ⓓ 2,755.4 m^3

8. Which is the least valid way to simulate how many boys and girls are in a random sample of 20 students from a school population that is half boys and half girls?

Ⓐ Flip a coin 20 times, assigning one outcome to boys and the other to girls.

Ⓑ Drop 20 coins at once and count the number of each outcome.

Ⓒ Count how many boys and girls are in your math class and use a proportion.

Ⓓ Have a calculator generate 20 random integers and count the number of even and odd integers.

9. Roberto plays on the school baseball team. In the last 9 games, Roberto was at bat 32 times and got 11 hits. What is the experimental probability that Roberto will get a hit during his next time at bat? Express your answer as a fraction in simplest form.

Ⓐ $\frac{32}{11}$ Ⓒ $\frac{21}{32}$

Ⓑ $\frac{11}{32}$ Ⓓ $\frac{11}{21}$

10. A coin-operated machine sells plastic rings. It contains 14 pink rings, 10 green rings, 9 purple rings, and 13 black rings. Sarah puts a coin into the machine. Find the theoretical probability she gets a pink ring. Express your answer as a decimal. If necessary, round your answer to the nearest thousandth.

Ⓐ 3.286 Ⓒ 4.6

Ⓑ 0.304 Ⓓ 0.217

11. A manufacturer inspects a sample of 400 personal video players and finds that 399 of them have no defects. The manufacturer sent a shipment of 2000 video players to a distributor. Predict the number of players in the shipment that are likely to have no defects.

Ⓐ 5 Ⓒ 399

Ⓑ 1995 Ⓓ 1950

12. An experiment consists of rolling two fair number cubes. What is the probability that the sum of the two numbers will be 8? Express your answer as a fraction in simplest form.

Ⓐ $\frac{5}{36}$ Ⓒ $\frac{36}{5}$

Ⓑ $\frac{1}{9}$ Ⓓ $\frac{31}{36}$

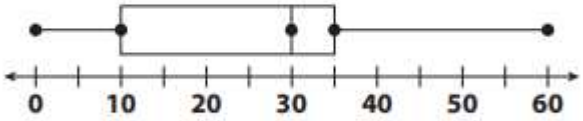
Mini-Tasks

13. A map of Australia has a scale of 1 cm : 110 km. If the distance between Darwin and Alice Springs is 1444 kilometers, how far apart are they on the map, to the nearest tenth of a centimeter?

14. The student council president wants to find out the opinion of the students on the issue of school lunch options. The president sends out a survey to a random sample of students in the school. What type of sample is this? Explain.

15. Using the following data, state the errors in the box-and-whisker plot.

33, 27, 6, 34, 31, 59, 26, 1, 30



Performance Task

16. The number of goals scored by a hockey team in each of its first 10 games is 2, 4, 0, 3, 4, 1, 3, 1, 1, and 5.

a. Find the mean number of goals scored.

b. Find the mean absolute deviation (MAD) of the number of goals scored.

c. A second team in the same division scores a mean of 4.5 goals in its first 10 games, with the same MAD as the team above. Compare the difference in the teams' mean number of goals with the MAD in the number of goals scored.

Math 8 Summer work pt 3

Directions: Answer each question. In order to receive full credit, you must show your work or provide an explanation to justify your answer choice

1. Multiply. Write the product as one power.
$a^8 \cdot a^5$

Ⓐ a^{13} Ⓒ a^{40}

Ⓑ a^3 Ⓓ Cannot combine

2. Simplify $(6^{-4})^6$.

Ⓐ -24^6 Ⓒ 6^2

Ⓑ $\frac{1}{6^{24}}$ Ⓓ $\frac{1}{6^{10}}$

3. A square mosaic is made of small glass squares. If there are 196 small squares in the mosaic, how many are along an edge?

Ⓐ 98 squares Ⓒ 14 squares

Ⓑ 49 squares Ⓓ 16 squares

4. Simplify $2\sqrt{-19+44}$.

Ⓐ 13.3 Ⓒ 10

Ⓑ 44 Ⓓ 27

5. A passenger plane travels at about 7.97×10^2 feet per second. The plane takes 1.11×10^4 seconds to reach its destination.

About how far must the plane travel to reach its destination? Write your answer in scientific notation.

Ⓐ 8.85×10^8 feet Ⓒ 8.85×10^6 feet

Ⓑ 9.08×10^6 feet Ⓓ 9.08×10^8 feet

6. Approximate $\sqrt{158}$ to the nearest hundredth.

Ⓐ 12.57 Ⓒ 16.57

Ⓑ 16.62 Ⓓ 8.52

7. Write a rule for the linear function.

x	y
−3	12
−2	10
3	0
5	−4

Ⓐ $y = -2x - 6$ Ⓒ $y = \frac{1}{2}x + 6$

Ⓑ $y = -2x + 6$ Ⓓ $y = \frac{1}{2}x - 6$

8. A remote-control airplane descends at a rate of 2 feet per second. After 3 seconds it is 67 feet above the ground. Write the equation in point-slope form that models the situation. Then, find the height of the plane after 8 seconds.

Ⓐ $y - 67 = -2(x - 3)$; 57 feet

Ⓑ $y - 67 = -3(x - 2)$; 49 feet

Ⓒ $y - 3 = -2(x - 67)$; 121 feet

Ⓓ $y - 2 = 67(x - 3)$; 337 feet

9. A bicyclist heads east at 19 km/h. After she has traveled 24.2 kilometers, another cyclist sets out in the same direction going 30 km/h. About how long will it take the second cyclist to catch up to the first cyclist?

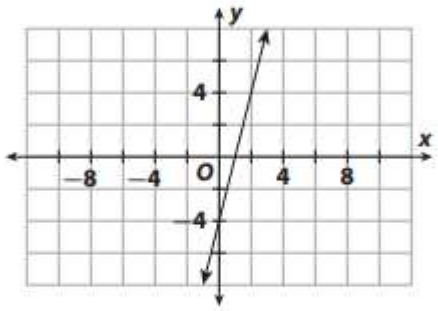
Ⓐ It will take the second cyclist 3.2 hours to catch up to the first cyclist.

Ⓑ It will take the second cyclist 3.7 hours to catch up to the first cyclist.

Ⓒ It will take the second cyclist 2.2 hours to catch up to the first cyclist.

Ⓓ It will take the second cyclist 1.7 hours to catch up to the first cyclist.

10. What is the equation of the graph in slope-intercept form?



Ⓐ $y = -4x - 4$ Ⓒ $y = -5x - 4$

Ⓑ $y = 4x - 4$ Ⓓ $y = 5x - 4$

11. Solve $-2z + 3 + 7z = -12$.

Ⓐ $z = -3$ Ⓒ $z = 1$

Ⓑ $z = -15$ Ⓓ $z = -1.8$

12. Which equation has only one solution?

Ⓐ $c + 2 = c + 2$ Ⓒ $c + 2 = c - 2$

Ⓑ $c = -c + 2$ Ⓓ $c - c = 2$

13. Which ordered pair is a solution of the system of equations?

$y = 3x + 1$

$y = 5x - 1$

Ⓐ (2, 3) Ⓒ (1, 2)

Ⓑ (0, 1) Ⓓ (1, 4)

14. Which of these functions is *not* linear?

Ⓐ $y = x^2 - x$ Ⓒ $y = \frac{x}{3}$

Ⓑ $y = 1 - x$ Ⓓ $y = \frac{2}{3}x - 2x$

15. Which function has the greatest rate of change?

Ⓐ $y = -5x$

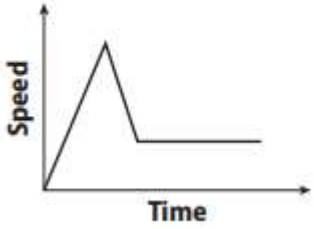
Ⓑ {(−1, −2), (1, 2), (3, 6), (5, 10), (7, 14)}

Ⓒ A fitness club charges a $200 membership fee plus monthly fees of $25.

Ⓓ $y = 3x - 16$

Mini-Tasks

16. The graph below shows an airplane's speed over a period of time. Describe the events.



17. Identify $\sqrt{\frac{169}{64}}$ as *rational* or *irrational*. Explain your reasoning.

Performance Task

18. Ashley reads 2 pages/minute for 10 minutes, takes a 10 minute break, and then reads at the same rate for 10 more minutes. Adam reads at the same rate the entire time. The equation for the number of pages he reads is $y = 1.2x$. How are these functions similar? How are they different?

Math 8 summer Work pt 4

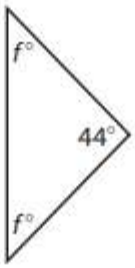
Directions: Answer each question. In order to receive full credit, show your work or provide an explanation to justify your answer choice.

1. In the gift shop of the History of Flight museum, Elisa bought a kit to make a model of a jet airplane. The actual plane is 21 feet long with a wingspan of 17.5 feet. If the finished model will be 12 inches long, what will the wingspan be?

Ⓐ 30.6 in. Ⓒ 14.4 in.

Ⓑ 10 in. Ⓓ 5 in.

2. Find the angle measures in the isosceles triangle.



Ⓐ $f = 18°$ Ⓒ $f = 68°$

Ⓑ $f = 118°$ Ⓓ $f = 11.7°$

3. Which ordered pair is a solution of the system of equations?

$y = 3x - 1$

$y = 5x + 1$

Ⓐ (4, 1) Ⓒ (−4, −1)

Ⓑ (1, 4) Ⓓ (−1, −4)

4. Melanie is making a piece of jewelry that is in the shape of a right triangle. The two shorter sides of the piece of jewelry are 9 mm and 12 mm. Find the perimeter of the piece of jewelry.

Ⓐ 32 mm Ⓒ 30 mm

Ⓑ 36 mm Ⓓ 34 mm

5. Find the distance, to the nearest tenth, from $T(4, -2)$ to $U(-2, 3)$.

Ⓐ −1.0 units Ⓒ 0.0 units

Ⓑ 3.4 units Ⓓ 7.8 units

6. Which of the following is *not* a congruence transformation?

Ⓐ A reflection over the *x*-axis.

Ⓑ A dilation with scale factor 0.5.

Ⓒ A translation 1 unit left.

Ⓓ A dilation with scale factor 1.

7. Harry and Selma start driving from the same location. Harry drives 42 miles north while Selma drives 144 miles east. How far apart are Harry and Selma when they stop?

Ⓐ 1,764 miles Ⓒ 22,500 miles

Ⓑ 150 miles Ⓓ 20,736 miles

8. Which triangle with side lengths given below is a right triangle?

Ⓐ 10, 15, 20 Ⓒ 9, 40, 41

Ⓑ 10, 24, 25 Ⓓ 16, 20, 25

9. Angles *B* and *F* are corresponding angles formed by a transversal intersecting two parallel lines. Angle *B* has a measure of 44°. What is the measure of Angle *F*?

Ⓐ 44° Ⓒ 90°

Ⓑ 46° Ⓓ 136°

10. Which transformation below preserves similarity between the preimage and image, but does not preserve congruence?

Ⓐ reflections Ⓒ translations

Ⓑ rotations Ⓓ dilations

11. An artist is creating a large conical sculpture for a park. The cone has a height of 16 m and a diameter of 25 m. Find the volume of the sculpture to the nearest hundredth.

Ⓐ 833.33 m^3 Ⓒ 2,616.67 m^3

Ⓑ 7,850 m^3 Ⓓ 209.33 m^3

12. A cylindrical barrel has a radius of 7.6 ft and a height of 10.8 ft. Tripling which dimension(s) will triple the volume of the barrel?

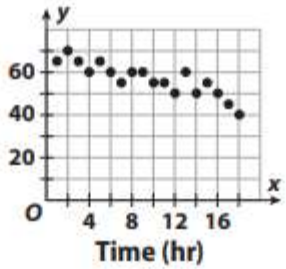
Ⓐ height

Ⓑ radius

Ⓒ both height and radius

Ⓓ neither height nor radius

13. Which linear equation approximates the best fit to the data?



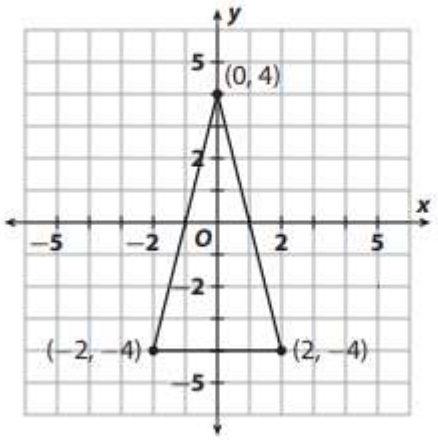
Ⓐ $y = -2x + 65$ Ⓒ $y = -x + 68$

Ⓑ $y = -5x + 100$ Ⓓ $y = -0.5x + 55$

Mini-Tasks

14. On Monday, a work group eats at Ava's café, where a lunch special is $8 and a dessert is $2. The total is $108. On Friday, the group eats at Bo's café, where a lunch special is $6 and a dessert is $3. The total is $90. Each time, the group orders the same number of lunches and the same number of desserts. How many lunches and desserts are ordered?

15. Dilate the figure by a scale factor of 0.5 with the origin as the center of dilation.



Performance Task

16. In a drought, many trees on a plot of land died. The table shows how many oak trees and pine trees survived or died.

Survived/ Died	Survived	Died	Total
Oak	60	20	80
Pine	72	48	120
Total	0	68	200

a. Create a two-way relative frequency table using decimals.

b. As a percent, what was the joint relative frequency of pine trees that died?

_____

c. Compare the conditional relative frequencies, in percent form, that a tree survived given that it was an oak and that it survived given that it was a pine.

_____