

Penny Sikes 5th and 6th Grade Mathematics Tournament

Sponsored by Farmers and Merchants Bank

2015 6th Grade Individual Test

- 1) Make sure your name, the full name of your school, and your grade are correct on the answer sheet.
- 2) NO CALCULATORS!
- 3) DO NOT OPEN THIS TEST BOOKLET UNTIL INSTRUCTED TO DO SO BY THE TEST MONITOR.
- 4) If you must leave to go to the restroom, raise your hand and a monitor will escort you to the nearest restroom. Remember you have a time limit.
- 5) Read each problem carefully and mark each answer on your answer sheet.
- 6) Each correct answer on the test will be counted as one point on your individual score.
- 7) If individuals have the same written test score, ties will be broken by determining which student gave correct answers to the most difficult item(s) on the test.
- 8) When the individual testing is over, please make sure you take your pencil, test, and scratch work with you. You will need the pencil for the ciphering rounds.

1. Ms. Slater is baking muffins. Each batch of cookies uses $\frac{3}{4}$ of a pound of flour. How many batches of cookies can she bake with 5 pounds of flour?
- (a) $3\frac{3}{4}$ batches (b) $4\frac{1}{4}$ batches (c) $5\frac{3}{4}$ batches (d) $6\frac{2}{3}$ batches
2. $2 \times 4 \times 6$ is a factor of
- (a) $2 \times 3 \times 4 \times 5$ (b) $3 \times 4 \times 5 \times 6$ (c) $4 \times 5 \times 6 \times 7$ (d) $5 \times 6 \times 7 \times 8$
3. A 40 pound animal sunk 2.5 inches deep into quicksand. At this rate, how deep would a 140 pound animal sink?
- (a) 2.5 inches (b) 8.75 inches (c) 10 inches (d) 22.4 inches

4. Which set of steps correctly shows how to simplify the expression?

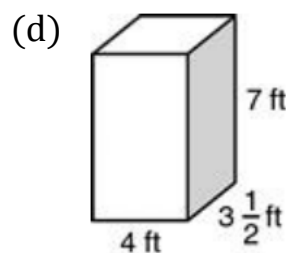
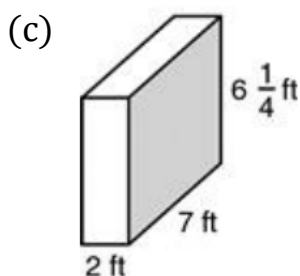
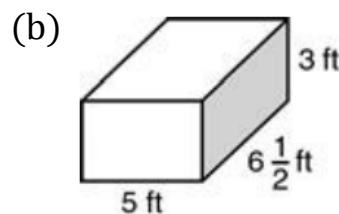
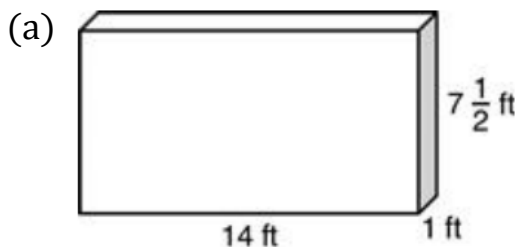
I	$(4^2 + 4) - 20 \div 2 \times 2$ $(8 + 4) - 20 \div 2 \times 2$ $12 - 20 \div 2 \times 2$ $12 - 10 \times 2$ $12 - 20$ -8	II	$(4^2 + 4) - 20 \div 2 \times 2$ $(16 + 4) - 20 \div 2 \times 2$ $20 - 20 \div 2 \times 2$ $20 - 10 \times 2$ $20 - 20$ 0
III	$(4^2 + 4) - 20 \div 2 \times 2$ $(16 + 4) - 20 \div 2 \times 2$ $20 - 20 \div 2 \times 2$ $0 \div 2 \times 2$ 0×4 4	IV	$(4^2 + 4) - 20 \div 2 \times 2$ $(16 + 4) - 20 \div 2 \times 2$ $20 - 20 \div 4$ $20 - 5$ 15

- (a) I (b) II (c) III (d) IV

5. If the area of each of the 3 squares shown is 9, what is the perimeter of the entire figure?



- (a) 18 (b) 24 (c) 27 (d) 36
6. To ride a rollercoaster at Peach State Park, a child must be at least 36 inches tall. Which number sentence correctly represents x , the height of a child not allowed to ride the rollercoaster?
- (a) $x = 36$ (b) $x > 36$ (c) $x < 36$ (d) $x \geq 36$
7. Given that 1 inch is equivalent to 2.54 centimeters, which of the following lengths is the greatest?
- (a) 34 inches (b) $3 \frac{1}{2}$ feet (c) $1 \frac{1}{4}$ yards (d) 30 centimeters
8. The manager at ABC Packing needs to purchase boxes in the shape of a right rectangular prism with a volume of 98 cubic feet. Which of the following boxes should the manager purchase?



9. Divide the remainder in $(888 \div 77)$ by 6. The new remainder is

- (a) 0 (b) 1 (c) 3 (d) 5

10. Statistical data for four data sets are shown below:

Data Set 1: Median 15 Absolute Mean Deviation 8

Data Set 2: Median 16 Absolute Mean Deviation 6

Data Set 3: Median 17 Absolute Mean Deviation 17

Data Set 4: Median 18 Absolute Mean Deviation 13

For which data set is there MOST likely the least variation in its values?

- (a) Data Set 1 (b) Data Set 2 (c) Data Set 3 (d) Data Set 4

11. Sidney created the following number line:



What fraction does point P represent on the number line?

- (a) $2 \frac{1}{2}$ (b) $2 \frac{1}{3}$ (c) $2 \frac{3}{5}$ (d) $2 \frac{3}{8}$

12. Gretchen plotted 4 points in Quadrant III of the coordinate plane. Which point below could have been one of the points Gretchen plotted?

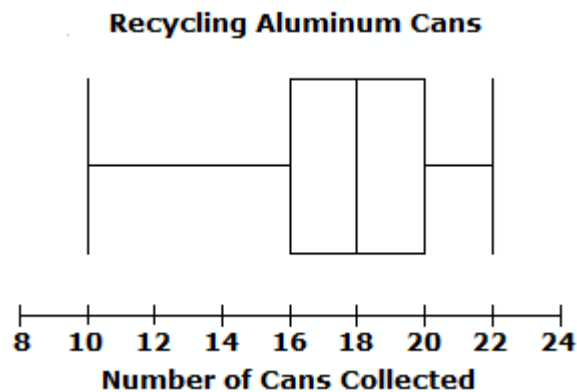
- (a) $(-3, -7)$ (b) $(-2, 5)$ (c) $(1, 6)$ (d) $(5, -13)$

13. How many sides does an octagon, a hexagon, and a pentagon have altogether?
- (a) 18 (b) 19 (c) 20 (d) 21
14. A horizontal line segment on a coordinate plane is 18 units long. Which could be the ordered pairs of the endpoints for the line segment?
- (a) (2, 3) and (2, 21) (b) (8, 4) and (10, 4)
- (c) (6, 12) and (12, 6) (d) (3, 12) and (21, 12)
15. Of 60 kids, if 20 like math, 30 like art, and 10 like both, then how many kids like neither?
- (a) 0 (b) 10 (c) 20 (d) 30
16. What is 25.48271 increased by 45 thousandths?
- (a) 25.93271 (b) 25.52771 (c) 25.48721 (d) 25.48316
17. A tutor charges \$30.00 for two hours of math tutoring. Using the table below, how much would the tutor charge for nine hours?

Amount Charged	\$30.00	\$60.00	\$90.00	?
Hours	2	4	6	9

- (a) \$105.00 (b) \$120.00 (c) \$135.00 (d) \$180.00

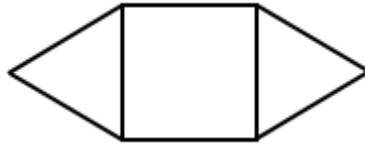
23. Johnny has a bag of 208 pieces of candy that he wants to split evenly between himself and 12 friends. How many pieces of candy should he give to each friend?
- (a) 17 (b) 15 (c) 16 (d) 14
24. A student will ask his classmates one survey question. Which of the following is a statistical question that should result in varied responses?
- (a) What is the length of a meter stick in centimeters?
- (b) What is the total number of feet in 8 yards?
- (c) What is the sum of the digits in your telephone number?
- (d) What is the total number of eggs in 5 dozens?
25. Martin and his classmates are collecting aluminum cans to be recycled. The box plot shows the data for the number of cans collected by each student.



Which statement must be correct?

- (a) The median of the data values is 16.
- (b) The range of the data values is the difference between 22 and 10.
- (c) The mean of the data values is 18.
- (d) The interquartile range of the data values is the difference between 20 and 18.

26. Two equilateral triangles share sides with a square, as shown. If a side of the square has a length of 4, what is the perimeter of the figure?



- (a) 48 (b) 40 (c) 32 (d) 24
27. The Sunrise Bakery received a shipment of plates from Company A packed in sets of 40 per carton. The Sunset Café received their shipment of plates from Company B packed in sets of 24 per carton. If each restaurant received the same number of plates, what is the least amount of plates each restaurant could have received?
- (a) 80 (b) 120 (c) 480 (d) 960
28. Which of the following scenarios cannot be represented by the expression $30m$?
- (a) the cost of m toys sold for 30 dollars per toy
- (b) the number of desks in a school if there are m classrooms with 30 desks in each
- (c) the distance traveled by a car that averaged 30 miles per hour for m hours
- (d) the number of candies per person when 30 candies are shared equally among m people
29. Marquez needs to simplify the following expression: $7 - 8 \div 2 \times 11 + 7$
- Which operation should Marquez do first?
- (a) $7 - 8$ (b) $8 \div 2$ (c) 2×11 (d) $11 + 7$

30. Find the average of one 1, two 2s, three 3s, and four 4s.

- (a) 2 (b) 3 (c) 4 (d) 5

31. Three boats leave a dock at the same time to travel 15 miles across a lake.

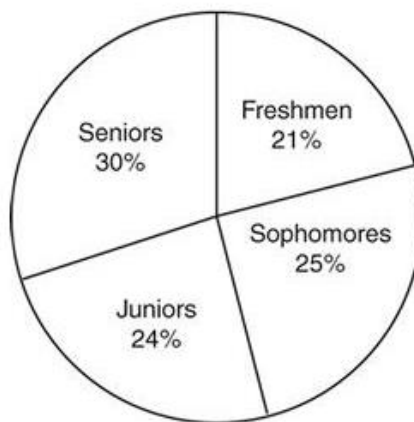
- Boat A travels the entire 15 miles at a speed of 20 miles per hour.
- Boat B travels at a speed of 40 miles per hour for 10 miles and slows to 15 miles per hour for the last 5 miles.
- Boat C travels at a speed of 10 miles per hour for the first 6 miles and then speeds up to 30 miles per hour for the last 9 miles.

Which list shows the order the boats will arrive on the other side of the lake from first to last?

- (a) A, B, C (b) B, C, A (c) C, A, B (d) B, A, C

32. In a certain high school, 240 students made the honor roll. According to the information in the circle graph, how many seniors made the honor roll?

Percent of 240 Students Who Made the Honor Roll



- (a) 30 (b) 45 (c) 60 (d) 72

33. What is the temperature if it is 9 degrees colder than -15°F ?

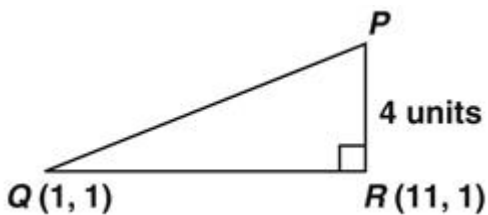
- (a) 24°F (b) 6°F (c) -6°F (d) -24°F

34. During the track meet, five runners tried to complete as many laps as possible in 10 minutes. Which of the following runners completed more laps than Destiny?

Name	Laps Completed
Kevin	6.7
Destiny	6.667
Karly	$6\frac{3}{5}$
Alicia	$6\frac{8}{10}$
Noah	6.59

- (a) Kevin and Alicia
(b) Karly and Alicia
(c) Karly and Noah
(d) Kevin and Noah

35. If triangle PQR has a height of 4 units, what are the coordinates of Point P?



- (a) (5, 1) (b) (11, 4) (c) (1, 5) (d) (11, 5)

36. Rico's average heart rate is 120 beats per minute. What is the ratio of his heart beats per second to his heart beats per minute?

- (a) 1:60 (b) 60:1 (c) 60:120 (d) 120:60

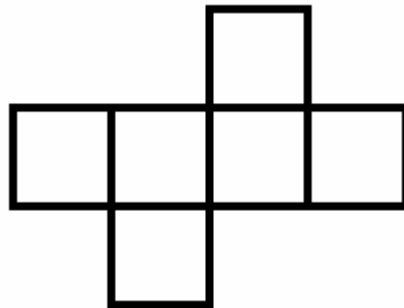
37. Ms. Lively has 28 students in her first-period class and 24 students in her second-period class. If almost 30% of the students in these classes are girls, about how many girls are in her first two classes?
- (a) 18 (b) 15 (c) 8 (d) 7
38. Johanna works after school taking care of her neighbor's dogs. She gets paid \$3 for each dog she walks and \$2 for each dog she feeds. Which expression represents her total earnings for walking d dogs and feeding 5 dogs?
- (a) $3d + 5$ (b) $3d + 2 \times 5$ (c) $(2 \times 5)d + 3$ (d) $d + 3 + 2 \times 5$
39. The number N is between 9 and 17. The average of 6, 10, and N could be
- (a) 8 (b) 10 (c) 12 (d) 14

40. Which of the following two-dimensional nets of polygons can be folded to create a paper cube?

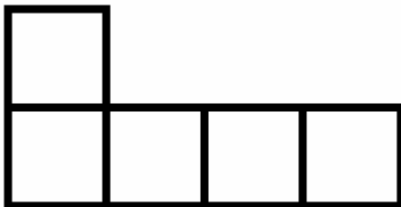
(a)



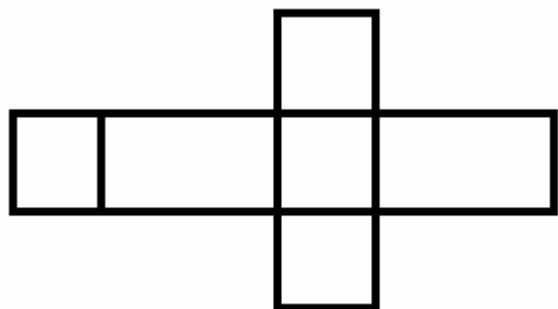
(b)



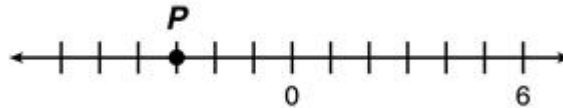
(c)



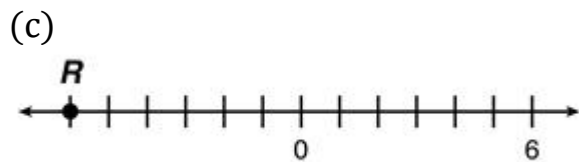
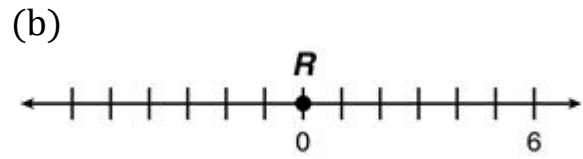
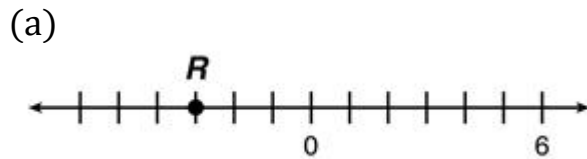
(d)



41. Point P has been marked on the following number line.



Which of the following number lines shows Point R, the opposite of P?



42. According to the following chart, between which two days did Daniella's account balance increase?

Monday	-20 dollars
Tuesday	-70 dollars
Wednesday	-80 dollars
Thursday	-70 dollars
Friday	-85 dollars

(a) Monday and Tuesday

(b) Tuesday and Wednesday

(c) Wednesday and Thursday

(d) Thursday and Friday

43. The product of the numbers 3 and ? is equal to their sum.

(a) $\frac{2}{3}$

(b) $\frac{3}{4}$

(c) $\frac{4}{3}$

(d) $\frac{3}{2}$

44. The ratio of hockey players to football players in the school is 2:3. Which of the following could represent the number of hockey and football players in the school?
- (a) 6 hockey and 12 football (b) 8 hockey and 10 football
- (c) 10 hockey and 15 football (d) 12 hockey and 15 football

45. The baseball team is holding a fundraiser. The relationship between the number of raffle tickets sold, X , and the total amount of money raised in dollars, Y , is shown in the following table. How much money is raised when 100 tickets are sold?

X	5	15	25
Y	\$25	\$75	\$125

- (a) \$175 (b) \$225 (c) \$400 (d) \$500
46. Reese simplified the following expression: $6(x + 7) + (8 + 10)$
- Step 1: $6(x + 7) + 18$
Step 2: $6x + 42 + 18$
Step 3: $6x + 60$

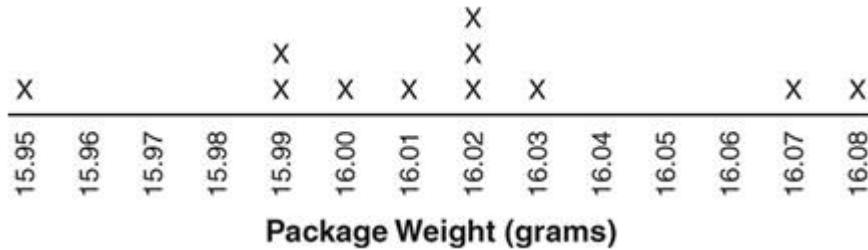
What property did she apply to develop step 2 of her work?

- (a) Commutative Property of Addition (b) Associative Property of Addition
- (c) Associative Property of Multiplication (d) Distributive Property

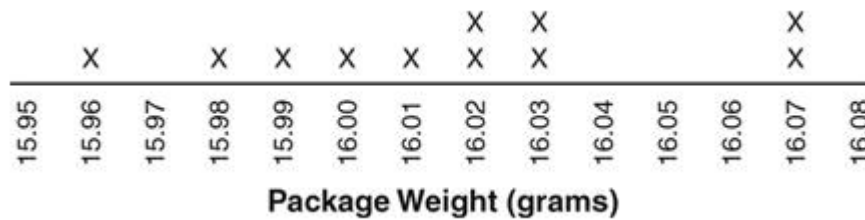
47. The post office has a machine that records and graphs the weight (in grams) of the packages as they are loaded onto the delivery trucks. Below are some of the weights of packages. Which graph correctly displays this data?

16.03, 16.01, 15.99, 16.07, 16.02, 16.02, 16.08, 16.00, 15.95, 16.02, 15.99

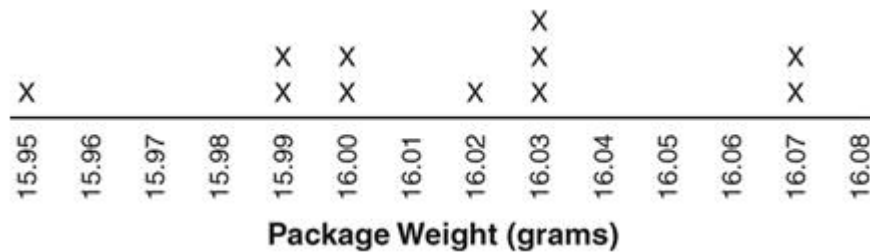
(a)



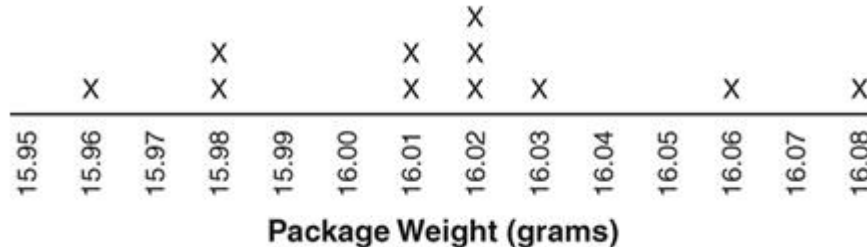
(b)



(c)



(d)



48. Which of the following situations could be used to solve the following open sentence?

$$\frac{c}{23} = ?$$

- (a) Darell has \$23.00 more than Bianca. If Bianca has c dollars, how much does Darell have?
- (b) Deena earns \$23.00 each time she rakes the yard. If c is the total amount of money that she earned last year by raking the yard, how many times did she rake the yard?
- (c) Amy earns \$23.00 on each carton of Girl Scout cookies she sells. If c is the number of cartons that she sold, how much did she earn in all?
- (d) Tanya had \$23.00. She spent c dollars on a notebook. How much money does Tanya have left?

49. A school bus can hold a maximum of 36 children. Which equation shows the relationship between buses and children?

(a)

$$\boxed{\text{Number of Children}} = 36 + \boxed{\text{Number of Buses}}$$

(b)

$$\boxed{\text{Number of Children}} = \boxed{\text{Number of Buses}} \times 36$$

(c)

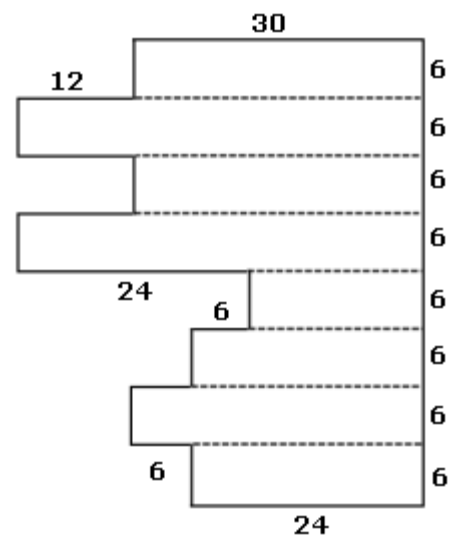
$$\boxed{\text{Number of Buses}} = 36 \times \boxed{\text{Number of Children}}$$

(d)

$$\boxed{\text{Number of Buses}} = \boxed{\text{Number of Children}} + 36$$

50. Gloria divided the following figure into rectangles to help her determine its area. What is the total area of the figure if all measurements are in inches?

- (a) 804 in^2 (b) 1296 in^2
- (c) 1440 in^2 (d) 1512 in^2



2015 6th Grade Answer Key

1. D	11. D	21. A	31. D	41. D
2. D	12. A	22. D	32. D	42. C
3. B	13. B	23. C	33. D	43. D
4. B	14. D	24. C	34. A	44. C
5. B	15. C	25. B	35. D	45. D
6. C	16. B	26. D	36. A	46. D
7. C	17. C	27. B	37. B	47. A
8. D	18. B	28. D	38. B	48. B
9. D	19. B	29. B	39. B	49. B
10. B	20. B	30. B	40. B	50. C