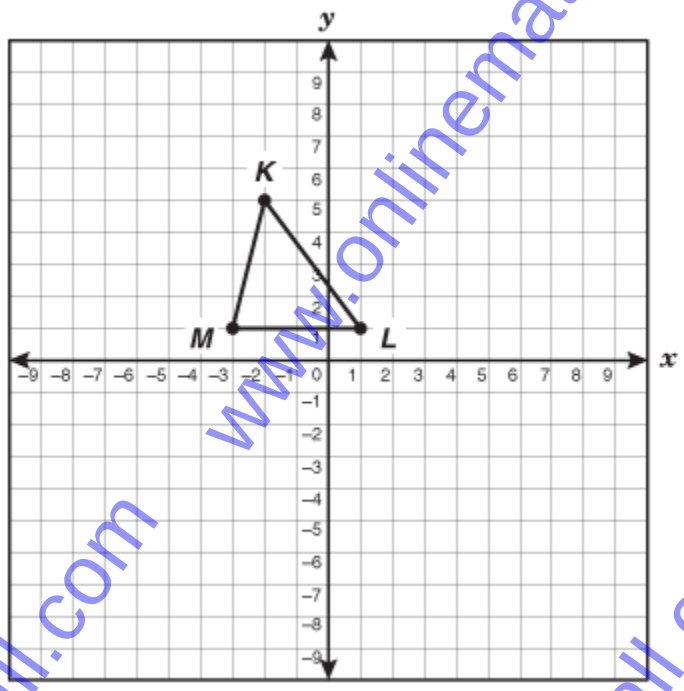
1. Max drew a triangle on the coordinate plane shown below.



Which of the following best represents the coordinates of the vertices of ΔKLM?

(a) (–2, 5), (1, 1), (–3, 1)

(b) (–2, 5), (1, 1), (1, –3)

(c) (5, –2), (1, 1), (1, –3)

(d) (5, –2), (1, 1), (–3, 1)

2. The numbers in Set R share a common characteristic.

Set R: 48, 54, 6, 66, 12, 24

The numbers in Set S do not share this characteristic.

Set S: 9, 20, 39, 15, 63, 27, 44

Which best describes the characteristic that only the numbers in Set R share?

(a) Numbers less than 70

(b) Numbers greater than 5

(c) Numbers that are composite

(d) Numbers divisible by 6

3. Leon bought a dozen daisies for $3.75. Which is closest to the amount Leon paid for each daisy?

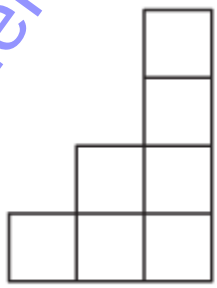
(a) $0.25

(b) $0.29

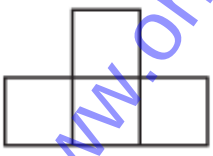
(c) $0.31

(d) $0.38

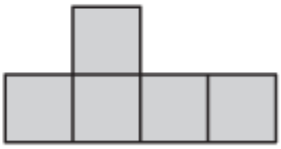
4. The top, front, and side views of a solid figure made of cubes are shown below.



Top

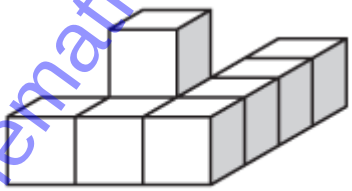


Front

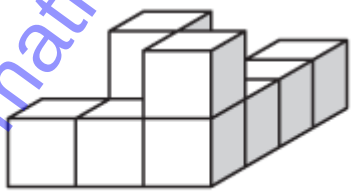


Side

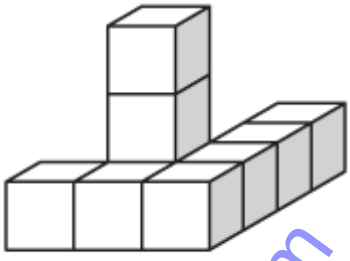
Which solid figure is best represented by these views?



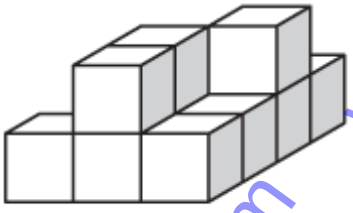
(a) Front



(c) Front



(b) Front



(d) Front

5. Which rule can be used to find the value of any term in the sequence below where n represents the position of the term?

Position	Value of Term
1	6
2	10
3	14
4	18
5	22
n	

(a) $2n + 4$

(c) $3n + 3$

(b) $4n + 2$

(d) $8n - 2$

6. A farmer knows the length and width of his rectangular pasture. He also knows how many pounds of fertilizer to spread per square yard. What additional information does the farmer need to know in order to determine the number of bags of fertilizer he should buy?

(a) The type of grass in his pasture

(b) The number of bags of fertilizer his truck will hold

(c) The price of each bag of fertilizer

(d) The number of pounds of fertilizer in each bag

7. Which situation is best represented by the equation $x - 4 = 16$?

(a) Miranda picked 16 apples and ate $\frac{1}{4}$ of them. What is x, the number of apples she had left?

(b) Felipe ran for 16 minutes and walked for 4 minutes. What is x, the difference between the time he spent running and the time he spent walking?

(c) Jordan spent $4 of his allowance and had $16 left. What is x, the total amount of Jordan's allowance?

(d) Cecilia has hit 4 of the last 16 balls pitched. What is x, the total number of balls pitched?

8. Marilou needs to cut a piece of glass for her table. The table is in the shape of a regular hexagon. The glass should measure 3/2 feet on each side. What is the perimeter of the piece of glass?

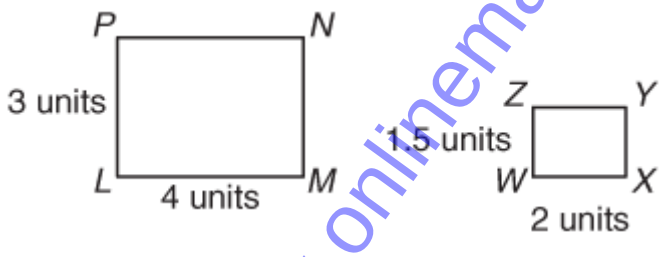
(a) 12 ft

(c) 18 ft

(b) 9 ft

(d) 7.5 ft

9. Look at the 2 rectangles below.



Which method could be used to prove that the rectangles are similar?

(a) Divide 3 by 2 and 4 by 1.5 to see whether the quotients are the same

(b) Divide 1.5 by 4 and 2 by 3 to see whether the quotients are the same

(c) Divide 4 by 1.5 and 2 by 3 to see whether the quotients are the same

(d) Divide 3 by 1.5 and 4 by 2 to see whether the quotients are the same

10. Lynne works at a bank and earns $9.75 per hour. If Lynne works 35 hours each week, which expression could be used to determine her total earnings for 1 year?

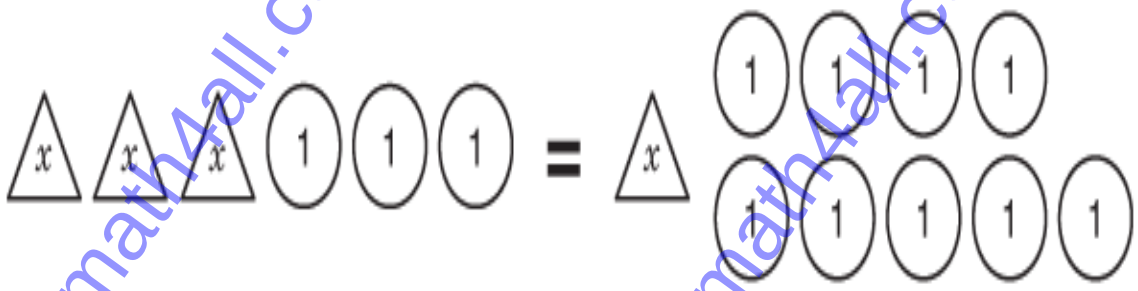
(a) 9.75 × 35

(b) 9.75 × 52

(c) 9.75 × 35 × 52

(d) 9.75 × 35 × 12

11. The equation $3x + 3 = x + 9$ is modeled below.



What value of x makes the equation true?

(a) $x = 3$

(b) $x = 6$

(c) $x = 12$

(d) $x = 4$

12. DeAndre bought 15 party hats priced at 3 for $0.65 and 56 noisemakers priced at 7 for $1.25. What was the total cost of the hats and noisemakers, not including tax?

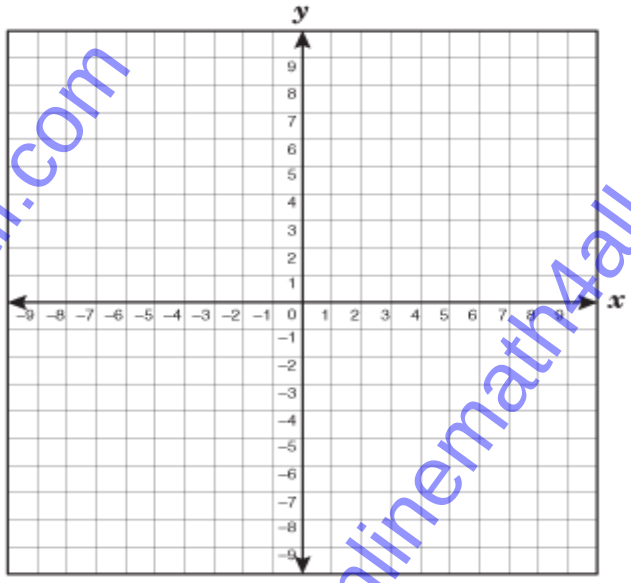
(a) $9.75

(c) $10.70

(b) $8.75

(d) $13.25

13. Beatrice translated trapezoid *RSTU* to trapezoid *R'S'T'U'*. Vertex *S* was at (4, 1).



If vertex *S'* is at (–3, 4), which best describes this translation?

(a) Move 7 units left and 3 units up

(b) Move 1 unit left and 3 units up

(c) Move 3 units down and 7 units right

(d) Move 8 units left and 4 units up

14. A triangle with two congruent sides and an angle of 104° is —

(a) Isosceles and right

(b) Isosceles and obtuse

(c) isosceles and acute

(d) scalene and obtuse

15. Laneitre is trying to figure out the heights of 3 people. Here are the facts she knows.

- The sum of the heights of these 3 people is 17 feet 5 inches.
- The shortest person is 5 feet 4 inches tall.
- The other 2 people differ in height by 3 inches.

How tall is the tallest person?

(a) 5 feet 4 inches

(b) 5 feet 11 inches

(c) 6 feet 2 inches

(d) 12 feet 1 inch

16. Brenda wants to attach a string of beads along the circular bottom edge of the lamp shade shown below. The diameter of the bottom of the lamp shade is 16 centimeters.

About how many centimeters long should Brenda make the string of beads?

(a) 25 cm

(b) 50 cm

(c) 79 cm

(d) 201 cm

17. The drawing below shows the rotor of a helicopter.

This helicopter has a rotor that moves at a rate of 500 spins per minute while flying. Which statement is best supported by this information?

(a) The helicopter rotor will spin 2,000 times in 40 minutes.

(b) The helicopter rotor will spin 4,000 times before lifting the helicopter off the ground.

(c) The helicopter rotor will spin 15,000 times in 3 hours.

(d) The helicopter rotor will spin 30,000 times in 1 hour.

18. Mrs. Newsome said that 1/8 he faculty at Long High School had attended the school as teenagers. Which decimal and percent are equivalent to1/8?

(a) 0.18, 18%

(b) 0.125, 12.5%

(c) 1.8, 180%

(d) 1.25, 125%

19. Arthur uses his own tractor while doing various jobs. He is paid a flat fee of $100 for each job. In addition to the flat fee, he is paid $20 for each hour he works with the tractor. Which shows how to find the amount Arthur should be paid for working with the tractor for 10 hours?

(a) Add 20 to 10 and then multiply the sum by 100

(b) Multiply 100 by 10 and then add 20 to the product

(c) Multiply 20 by 10 and then add 100 to the product

(d) Add 20 to 100 and then multiply the sum by 10

20. The circle graph below shows the materials in U.S. landfills.

Which of the following statements is NOT supported by the graph?

(a) Paper and other trash make up more than $\frac{1}{2}$ of U.S. landfills.

(b) Rubber and leather and food and yard waste make up $\frac{1}{4}$ of U.S. landfills.

(c) The amount of plastic is triple the amount of metal in U.S. landfills.

(d) The amount of paper is more than twice the amount of metal in U.S. landfills.

21. Nora wants to save $82.50 to buy a special gift for her mother. She has 15 weeks to save the money. If she wants to save the same amount each week, how much money, in dollars and cents, must Nora save each week?

(a) 5.50

(b) 6.60

(c) 7.70

(d) 8.80

22. Randy and his 5 friends played a card game in which the person with the lowest final score wins. The table below shows the final scores for all the players except Erica.

Card Game

Player	Score
Randy	121
Erica	
John	119
Sam	107
Dawn	123
Maya	112

If Erica won the game and the range of the scores was 17, what was Erica's score?

(a) 104

(b) 106

(c) 140

(d) 124

23. A school district hired a speaker to present some information for career day to the middle school students in the district. The speaker used the following information to estimate the total number of students who will attend the presentation.

- There are 3 middle schools
- There are 20–25 homeroom classes in each middle school.
- There are 25–30 students in each homeroom

What is the best estimate of the total number of students who will attend the presentation?

(a) 750

(b) 1,125

(c) 1,800

(d) 2,500

24. The data in the table below show the number of lunch items sold at a school snack bar in one day.

Snack Bar

Lunch Item	Number Sold
Slice of pizza	170
Hamburger	80
Nachos	130
Regular milk	200
Chocolate milk	110

Which statement is best supported by these data?

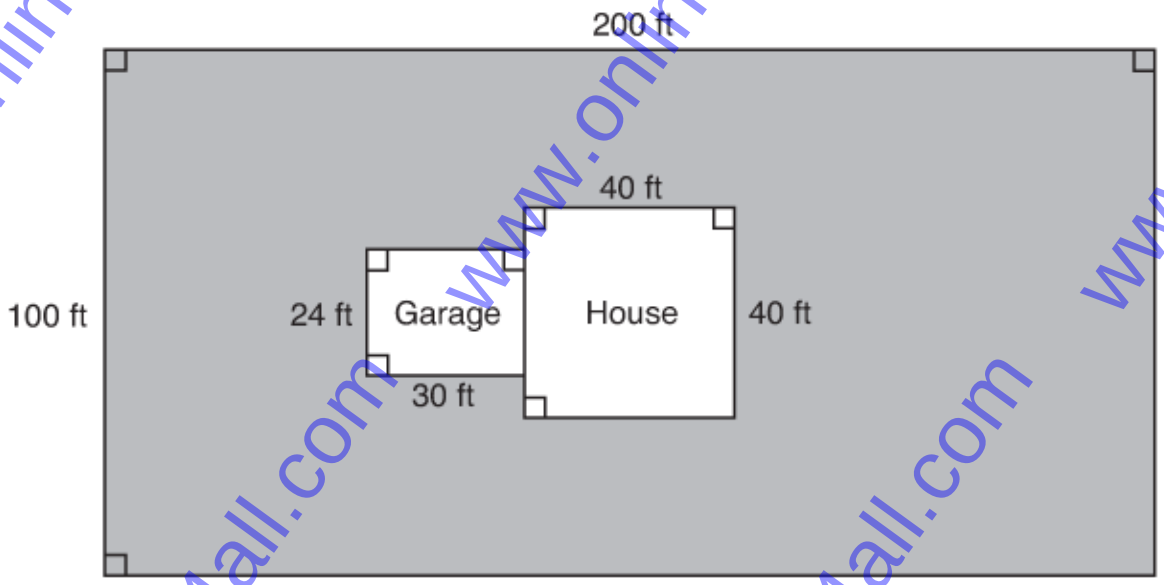
(a) There are a total of 690 students attending classes at the school.

(b) The number of students who bought hamburgers is 50% of the number of students who bought nachos.

(c) There are 300 students at the school who do not like hamburgers.

(d) There are 300 students at the school who do not like hamburgers.

25. A pest-control company was hired to spray the lawn represented by the shaded region shown below.



What was the area in square feet that was sprayed?

(a) 19,280 ft^2

(c) 37,680 ft^2

(b) 20,000 ft^2

(d) 17,680 ft^2

26. Of the 850 students at Brown Middle School, 38% are in the school band. How many students are in the school band?

(a) 32

(c) 323

(b) 527

(d) 812

27. Mrs. Blackburn wrote the following riddle on the board for her mathematics class.

We are 2-digit numbers. Our greatest common factor is 16. Our difference is 48. Our sum is 112.

What are the 2 numbers of the riddle?

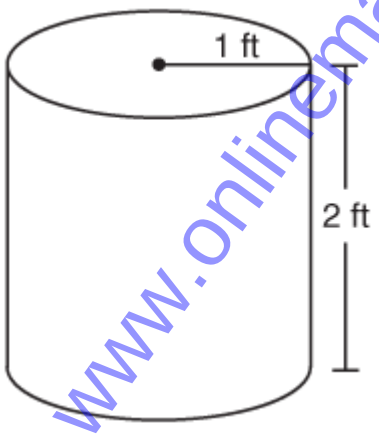
(a) 16 and 48, because their greatest common factor is 16

(b) 32 and 80, because their difference is 48 and their greatest common factor is 16

(c) 16 and 64, because their difference is 48 and their greatest common factor is 16

(d) 48 and 96, because their difference is 48

28. For storage Mrs. Lin uses cylindrical containers like the one shown below.



If Mrs. Lin uses 2 of these containers, which is closest to the total volume of both containers?

(a) 13 cubic feet

(b) 6 cubic feet

(c) 8 cubic feet

(d) 16 cubic feet

29. The table shows several countries and the portion of their population that is under age 15.

Populations

Country	Portion of Population Under Age 15
Chad	47.8%
United States	$\frac{1}{5}$
Uganda	$\frac{1}{2}$
Benin	$\frac{23}{50}$
Ethiopia	47.3%

Which of the following lists the countries in order from least to greatest portion of the population under age 15?

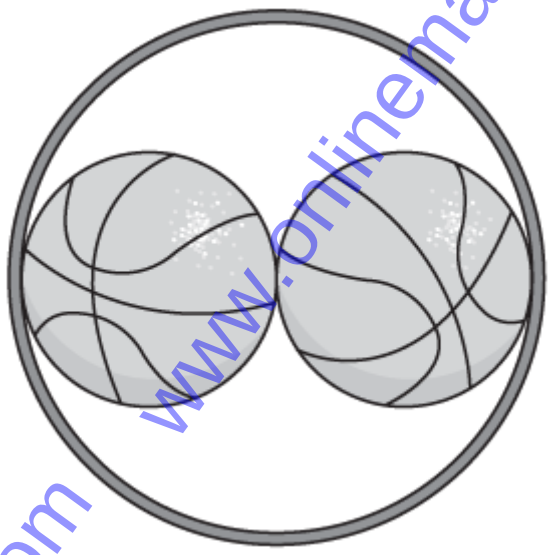
(a) United States, Ethiopia, Benin, Chad, Uganda

(b) Uganda, United States, Benin, Ethiopia, Chad

(c) United States, Benin, Ethiopia, Chad, Uganda

(d) Uganda, Chad, Ethiopia, Benin, United States

30. Two basketballs can fit inside a hoop, as shown in the drawing below.



If each basketball has a circumference of 30 inches, which equation could be used to find *d*, the diameter of the hoop?

(a) $(30/\pi) \times 2 = d$

(b) $(30/\pi) = d$

(c) $30=\pi \times d \times 2$

(d) $30 \times \pi = 2 \times d$

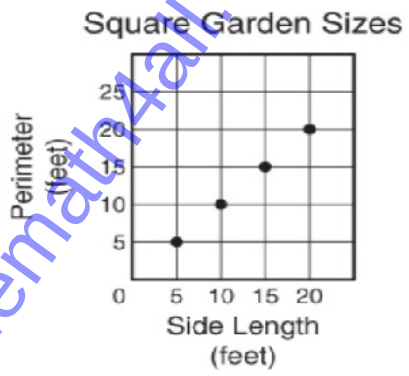
31. The table below shows the different sizes of square gardens Charlie can build.

Square Garden Sizes

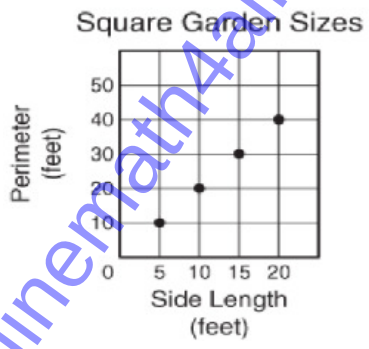
Garden	Side Length (feet)
W	5
X	10
Y	15
Z	20

Which graph shows the correct relationship between the side length and perimeter of each square garden Charlie can build?

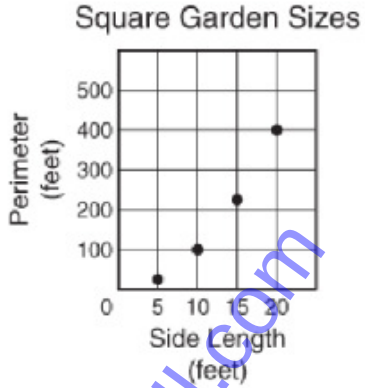
(a)



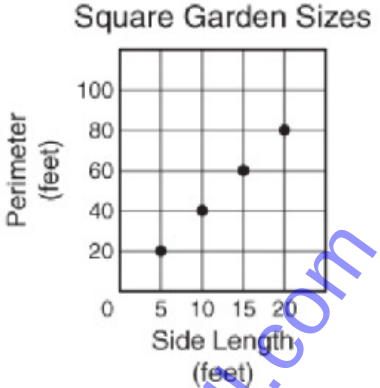
(c)



(b)



(d)



32. Stephanie makes cocoa mix to sell at the winter fair. She makes 230 cups of one flavor of cocoa mix and 180 cups of another flavor. To package the cocoa mix, Stephanie needs to purchase containers that hold 2 cups each. The containers are sold in boxes of 50. Which would be the correct order for Stephanie to do the following steps to find the number of boxes of containers she needs to buy?

Step R: Divide the total number of cups of cocoa mix by 2.

Step S: Find the sum of the numbers of cups of the two different types of cocoa mix.

Step T: Divide the number of containers needed by 50 to find the number of boxes of containers to buy.

(a) R, S, T

(b) S, R, T

(c) T, R, S

(d) R, T, S

33. Janeska ran in 3 races. The distances she ran in the races were 5 kilometers, 4.25 kilometers, and 5.5 kilometers. How many meters did Janeska run in the 3 races altogether?

(a) 1,475 m

(b) 14,750 m

(c) 48,500 m

(d) 15,000 m

34. Bradley answered 80% of the questions on his science test correctly. There were 30 questions on the test, and all the questions had equal value. How many questions did Bradley NOT answer correctly on his test?

(a) 6

(b) 8

(c) 24

(d) 20

35. Mrs. Sheldon made lunch for her family. She made tuna sandwiches and chicken sandwiches. She made coconut cookies and oatmeal cookies. Which list shows all possible outcomes if a person picked one sandwich at random and one cookie at random?

(a) (Tuna, coconut), (chicken, oatmeal)

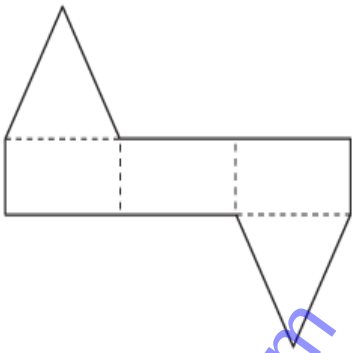
(b) (Tuna, coconut), (chicken, coconut), (tuna, oatmeal), (chicken, oatmeal)

(c) (Tuna, chicken), (tuna, coconut), (tuna, oatmeal), (chicken, tuna), (chicken, coconut), (chicken, oatmeal)

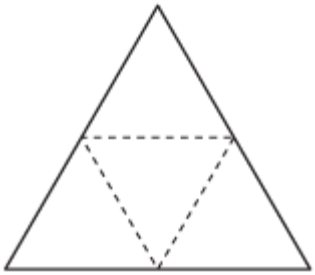
(d) (Tuna, oatmeal), (chicken, oatmeal), (tuna, chicken), (coconut, oatmeal)

36. The final project in Yasmeen's art class is to create a 3-dimensional triangular pyramid out of paper. Which net below could Yasmeen use to create a triangular pyramid?

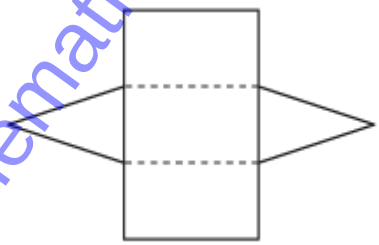
(a)



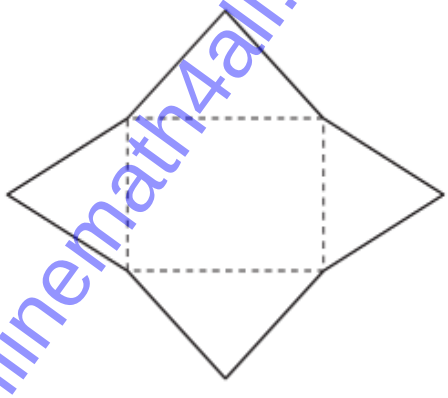
(c)



(b)



(d)



37. A newspaper gains and loses subscribers daily, as some people subscribe and other people cancel their subscriptions. The table below shows the subscriptions and cancellations for a newspaper during the first two months of the year.

Subscriptions

Month	New Subscriptions	Cancellations
January	100	30
February	450	120

If the newspaper started the year with s subscriptions, which expression can be used to find how many subscriptions the newspaper had at the end of the two-month period?

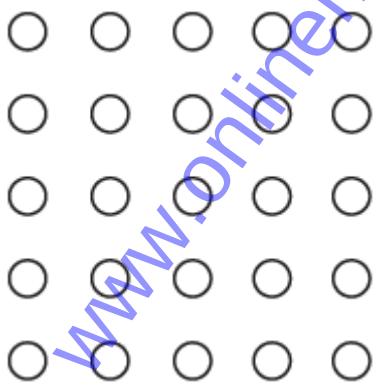
(a) $s + 100 + (-30) + 450 + (-120)$

(b) $s + 100 + 30 + 450 + 120$

(c) $s + 100 + 450$

(d) $s + (-30) + (-120)$

38. The model below can be used to represent the area of a square with a side length of $\sqrt{25}$ units.



What is another way to represent the side length of this square?

(a) 125

(c) $\sqrt{125}$

(b) 5

(d) $\sqrt{5}$

39. Patrice records the number of calories she burns while exercising each day, as shown below.

Day 1: 250 calories

Day 2: 350 calories

Day 3: 400 calories

Day 4: 250 calories

Day 5: 300 calories

How many calories must Patrice burn on the sixth day to have a mean of 300 calories burned for the 6 days?

(a) 0 calories

(b) 250 calories

(c) 150 calories

(d) 310 calories

40. Peter wants to find the perimeter of the isosceles trapezoid shown below.

Which equation could Peter use to find *P*, the perimeter of the trapezoid?

(a) $P = 8 \cdot 14 + 5$

(b) $P = 8 + 14 + (2 \cdot 5)$

(c) $P = (8 + 14) \cdot 4 \div 2$

(d) $P = 8 + 5 + 14 + 4$

41. The drawing below shows the side view of a picture frame on a desk.

If $m\angle 1$ is 75°, what is the measure of its complementary angle?

(a) 15°

(b) 25°

(c) 105°

(d) 115°

42. Lindy is planning to build a model of a train using a scale where 2 inches represents 25 feet. If the train is 60 feet long, what is the length in inches that Lindy should build the model of the train?

(a) 9.6 in.

(b) 2.4 in.

(c) 4.8 in

(d) 1.2 in.

43. What is the value of the expression below?

$$10 + 7 \cdot 8^2 \div 2$$

(a) 61

(c) 544

(b) 234

(d) 66

44. A 10-ounce box of cereal costs $2.98, and a 20-ounce box of the same cereal costs $5.49. Which of these statements will help a shopper decide which box is the better buy?

(a) The 10-ounce box is the better buy because it is less expensive per ounce of cereal.

(b) The 10-ounce box is the better buy because $2.98 is about $3, and $3 goes into $5.49 about 3 times.

(c) The 20-ounce box is the better buy because it is more expensive per ounce of cereal.

(d) The 20-ounce box is the better buy because two of the 10-ounce boxes cost more than one 20-ounce box.

45. Lisa's principal kept a record of the times Lisa's school bus arrived at school. The table below shows the percent of time that the bus arrived on time or was late.

Bus Arrivals

Arrival Times	Percent of Time
On time	40
1 second to 5 minutes late	30
5 minutes 1 second to 10 minutes late	20
More than 10 minutes late	10

Which statement is best supported by the data in the table?

(a) The bus was late a higher percent of the time than it was on time.

(b) The bus was late less than half the time.

(c) The bus was between 1 second and 5 minutes late most of the time.

(d) The bus was more than 10 minutes late most of the time.

46. Ed is reading the math problem shown below.

1.6/3.2

Which is a correct way to read this problem?

(a) One and six tenths divided by three and two tenths

(b) Three and two tenths divided by one and six tenths

(c) Three and two hundredths divided by one and six hundredths

(d) One and six hundredths divided by three and two hundredths

47. A survey asked 50 students which activities they like to participate in during the summer. The results of the survey are shown in the table below.

Summer Activities

Type of Activity	Number of Students
Traveling with family	12
Working	13
Visiting friends	25

Which circle graph best represents the data in this table?

(a)

(c)

(b)

(d)

48. In a school 50% of the students are younger than 10, 1/20 are 10 years old and 1/10 are older than 10 but younger than 12, the remaining 70 students are 12 years or older. How many students are 10 years old?

(a) 10 students

(b) 13 students

(c) 17 students

(d) 15 students

49. If the length of the side of a square is doubled, what is the ratio of the areas of the original square to the area of the new square?

(a) 4:1

(b) 1:4

(c) 1:8

(d) 8:1

50. The division of a whole number N by 13 gives a quotient of 15 and a remainder of 2. Find N.

(a) 197

(b) 165

(c) 135

(d) 162

Answers:

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