Student Name _____

Ohio Achievement Tests

Grade

4

Mathematics
Student Test Booklet
March 2006

STOP

This test was originally administered to students in March 2006.

This publicly released material is appropriate for use by Ohio teachers in instructional settings. This test is aligned with Ohio's Academic Content Standards for Mathematics.

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Directions:

Today you will be taking the Ohio Grade 4 Mathematics Achievement Test. This is a test to see how well you understand mathematics. This test consists of questions about numbers, measurement, shapes, graphs, and patterns. Three different types of questions appear on this test: multiple choice, short answer and constructed response.

There are several important things to remember:

1. Read each question carefully. Think about what is being asked. Look carefully at graphs or diagrams because they help you understand the question.

2. You may use the blank areas of your Student Test Booklet to solve problems.

3. When you write your answers, write them neatly and clearly in the space provided using a pencil.

4. When you are asked to select the answer, make sure you fill in the circle next to the answer choice. Mark only one answer for each question.

5. If you do not know the answer to the question, skip it and go on. If you have time at the end of the test, go back to the questions you skipped and answer them before you hand in your Student Test Booklet.

6. If you finish the test early, you should check over your work. When you are finished and your Student Test Booklet has been collected, you should take out your silent work.

7. When you finish the test, you may <u>not</u> go on to, or look at the writing section of the Student Test Booklet.

Directions: Carefully read each question. Fill in the circle next to the correct answer.

1. Ruth's garden has 6 rows of strawberry plants. There are 20 strawberry plants in each row.

    How many strawberry plants are in Ruth's garden?

    ○ A. 12

    ○ B. 26

    ○ C. 80

    ○ D. 120

2. Alan will be gathering data about the temperature.

    Which part of Alan's data collection plan should come first?

    ○ A. create a graph to display the data

    ○ B. record the data

    ○ C. choose a place and time to collect the data each day

    ○ D. interpret the data

3. Courtney starts with 12 birdhouses. She makes three new birdhouses each week.

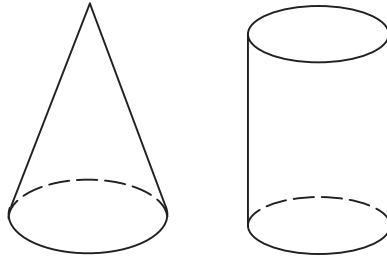   Which pattern shows the number of birdhouses Courtney has at the end of each week?

    ○ A.   3, 6, 9, 12

    ○ B.   3, 15, 27, 39

    ○ C. 12, 15, 18, 21

    ○ D. 12, 24, 36, 48

4. Paco is filling his fish tank with water.

    Which container should Paco use to make the fewest trips to the faucet?

    ○ A. one-cup container

    ○ B. one-gallon container

    ○ C. one-pint container

    ○ D. one-quart container

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5. A cone and a cylinder are shown.

Give one way that a cone and a cylinder are alike.

Give one way that a cone and a cylinder are different.

6. One month Tony's puppy grew $\frac{7}{8}$ of an inch. The next month his puppy grew $\frac{5}{8}$ of an inch.

   How many inches did Tony's puppy grow in two months?

   ○ A. $\frac{2}{8}$

   ○ B. $\frac{35}{64}$

   ○ C. $\frac{12}{16}$

   ○ D. $\frac{12}{8}$

7. Lyn and Kris were picking up pine cones. Every 15 minutes they counted to check the total number of pine cones they had picked up. The chart shows their results.
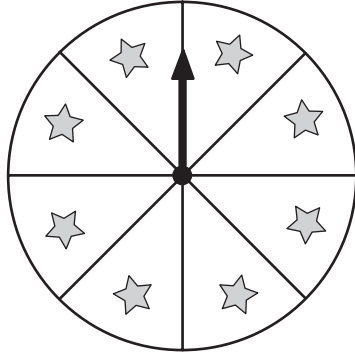
Time	Lyn's Pine Cones	Kris' Pine Cones
1:15 p.m.	8	16
1:30 p.m.	15	30
1:45 p.m.	22	44
2:00 p.m.	31	62

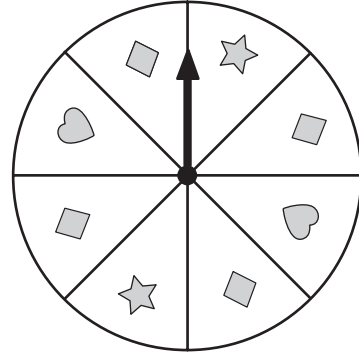   Which statement is true according to the data in the chart?

   ○ A. Kris always picked up 8 more pine cones than Lyn.

   ○ B. Kris and Lyn picked up the same number of pine cones every 15 minutes.

   ○ C. Kris picked up fewer pine cones than Lyn.

   ○ D. Kris picked up twice as many pine cones as Lyn.

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8. Which spinner has a probability of 0 for landing on a star, ☆?

○ A.

○ B.

○ C.

○ D.

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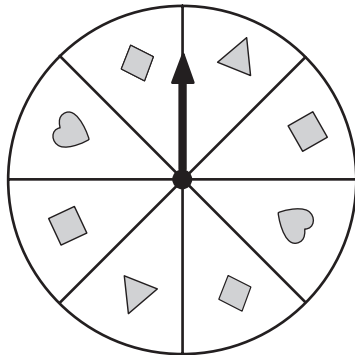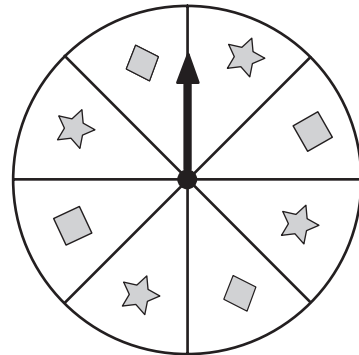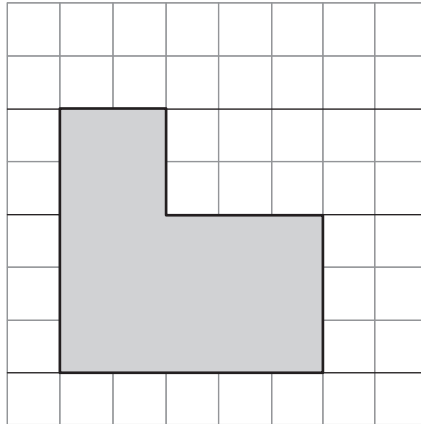
9.   A figure is shown on the grid.

What is the area of the figure?

○   A.   16 square units

○   B.   19 square units

○   C.   20 square units

○   D.   25 square units

10.   Some fractions are less than one. Some fractions are equal to one. Some fractions are greater than one.

Write a fraction that is equal to one.   _____

Use words, pictures or numbers to show or explain why your fraction is equal to one.

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On the March 2006 Grade 4 Mathematics Achievement Test, items 11-16 are field-test items, which are not released.

17.　Which is the same as 480,072?
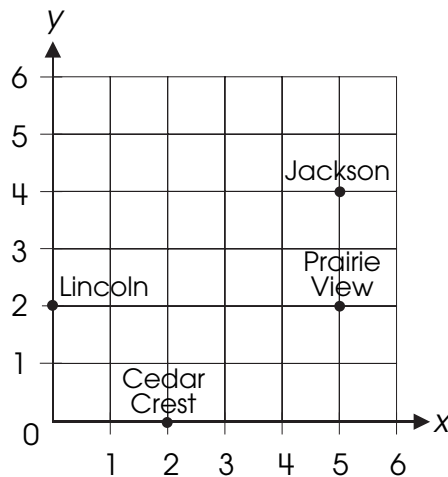
○　A.　400 + 80 + 70 + 2

○　B.　4,000 + 80 + 700 + 2

○　C.　40,000 + 80,000 + 70 + 2

○　D.　400,000 + 80,000 + 70 + 2

18.　Mr. Yang is driving to the school located at (2, 0) on the coordinate grid.

Which school is located at (2, 0)?

○　A.　Cedar Crest

○　B.　Jackson

○　C.　Lincoln

○　D.　Prairie View

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19. Mai Lee is buying notebooks. The first notebook costs $0.78 and each additional notebook costs $0.22.

Which table shows the cost of the notebooks?

○ A.

Number of Notebooks	Cost
1	$0.22
2	$0.44
3	$0.66
4	$0.88
5	$1.10

○ B.

Number of Notebooks	Cost
1	$0.78
2	$1.00
3	$1.22
4	$1.44
5	$1.66

○ C.

Number of Notebooks	Cost
1	$0.78
2	$1.56
3	$2.34
4	$3.12
5	$3.90

○ D.

Number of Notebooks	Cost
1	$1.00
2	$1.22
3	$1.44
4	$1.66
5	$1.88

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20.   Reuben recorded the heights of 7 boys and 7 girls in his class in the table shown.

Height (in inches)	
Boys	Girls
47	49
50	50
51	52
53	55
53	56
55	56
58	58

Calculate the range, the median and the mode for the height of the boys and for the height of the girls.

Range:

Boys _____

Girls _____

Median:

Boys _____

Girls _____

Mode:
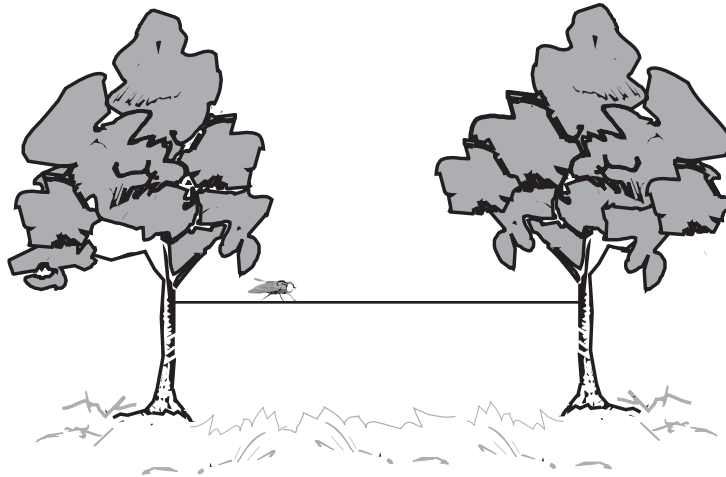
Boys _____

Girls _____

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Use the range, median or mode to compare the heights of the boys and the girls and tell which group you think is taller.
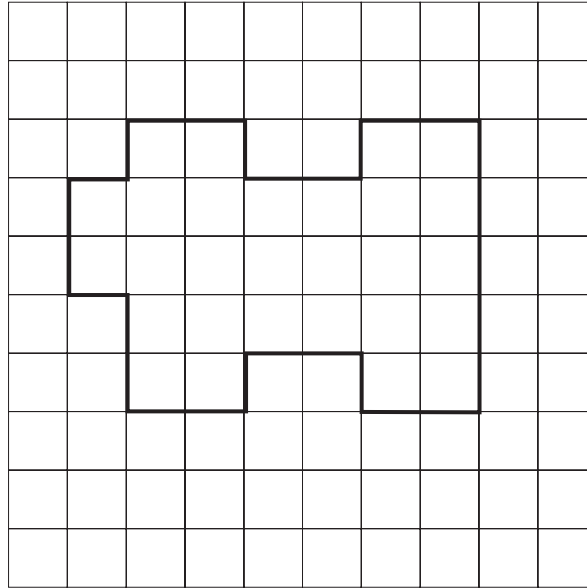
_____

Explain how you made your choice.

48

21. A bug lands on a rope stretched between two trees on a lawn at a park.

Which object (the bug, the rope, the lawn, the park) is best described as a point?

○ A. bug

○ B. rope

○ C. lawn

○ D. park

22. Abdul counted the number of units around the outside of the shape shown.
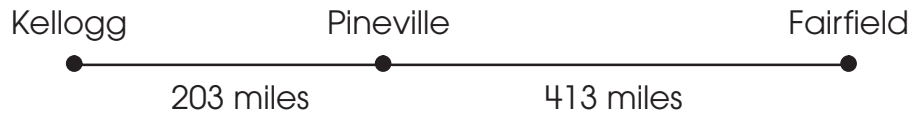

Which measurement did Abdul find?

○ A. area

○ B. height

○ C. perimeter

○ D. volume

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23.　The distance between three towns is shown.

Kellogg　　　　　　　Pineville　　　　　　　　　Fairfield
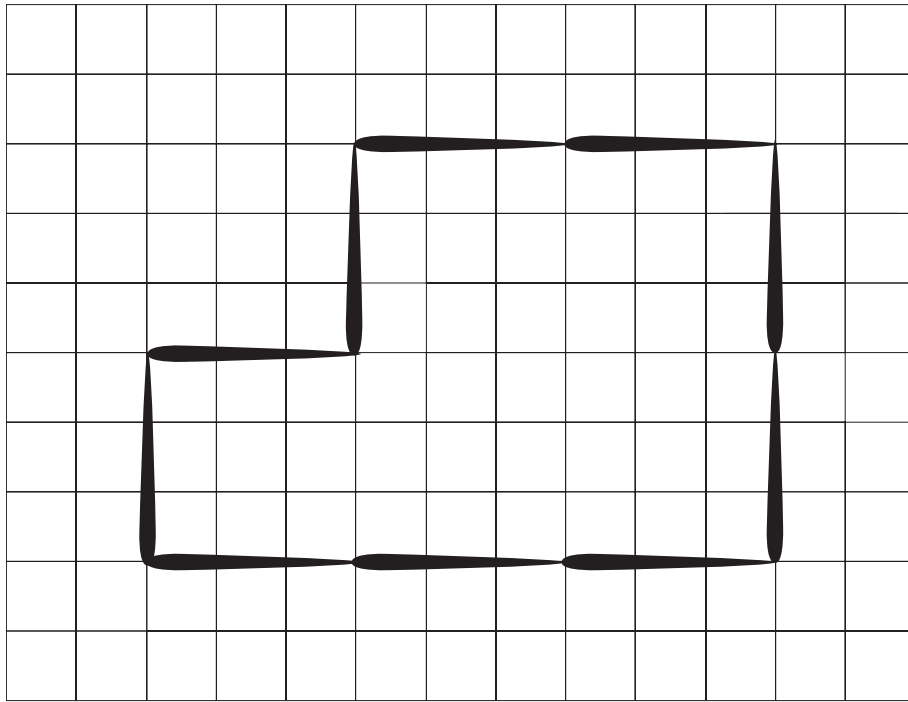
　　　203 miles　　　　　　413 miles

Estimate the distance from Kellogg to Fairfield.

○　A.　500 miles

○　B.　600 miles

○　C.　700 miles

○　D.　800 miles

24.　A theater has 14 rows of seats. Each row has the same number of seats.
The theater has a total of 168 seats.

Which equation can be used to find the number of seats, *s*, in each row?

○　A.　$168 \times 14 = s$

○　B.　$14 \times s = 168$

○　C.　$168 - s = 14$

○　D.　$14 + s = 168$

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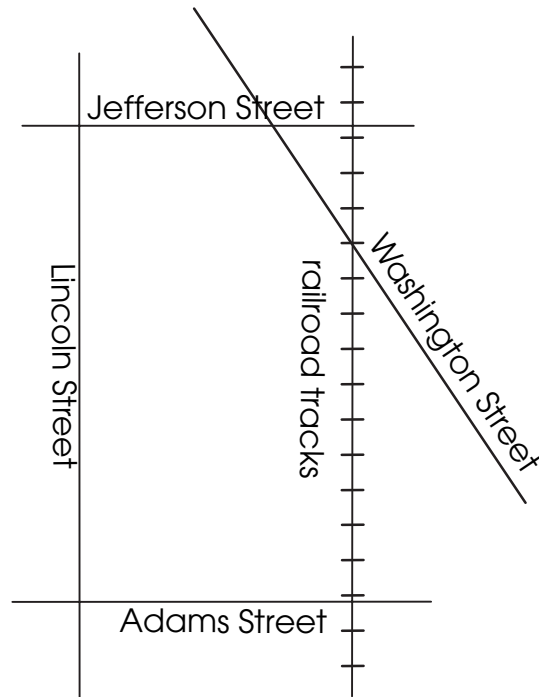25.   Randy made this shape with toothpicks.

Each | = 1 Toothpick = 3 inches

What is the perimeter of the shape in inches? _____

Describe how you found the length of the perimeter.

59

44

26.   A map of Andrew's neighborhood is shown. Andrew lives on the street that appears to be parallel to the railroad tracks.
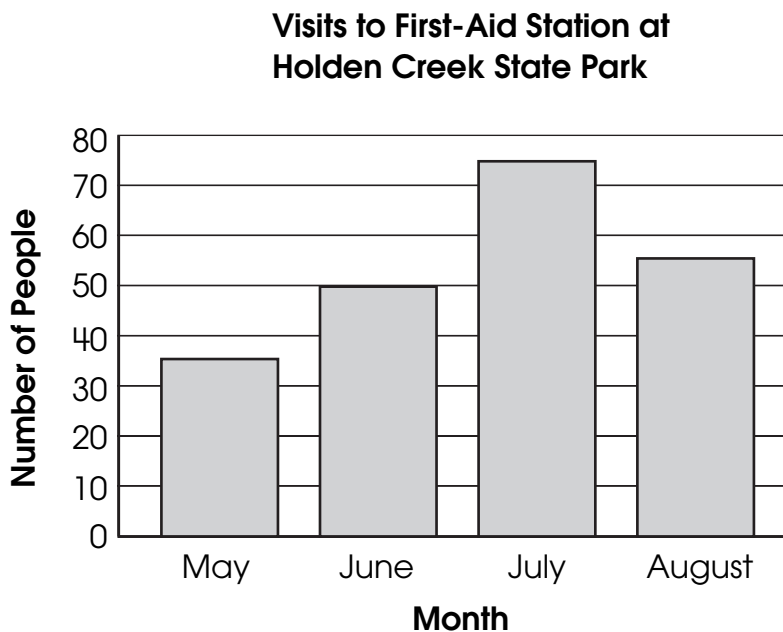

On which street does Andrew live?

○   A.   Washington Street

○   B.   Lincoln Street

○   C.   Adams Street

○   D.   Jefferson Street

27. The bar graph shows the number of people who visited the first-aid station at Holden Creek State Park each month last summer.

Visits to First-Aid Station at Holden Creek State Park

How many more people visited the first-aid station in July than in May?

○ A. 15 people

○ B. 20 people

○ C. 40 people

○ D. 110 people

42

28. Mrs. Thomas gave the store clerk $25.00 for a pair of jeans. She received $2.88 back in change.

What was the price of the jeans?

○ A. $21.12

○ B. $22.12

○ C. $22.22

○ D. $23.22

29. Casey made the pattern shown.

8, 19, 30, 41, _____, _____, _____

What are the next three numbers?

Describe the pattern.

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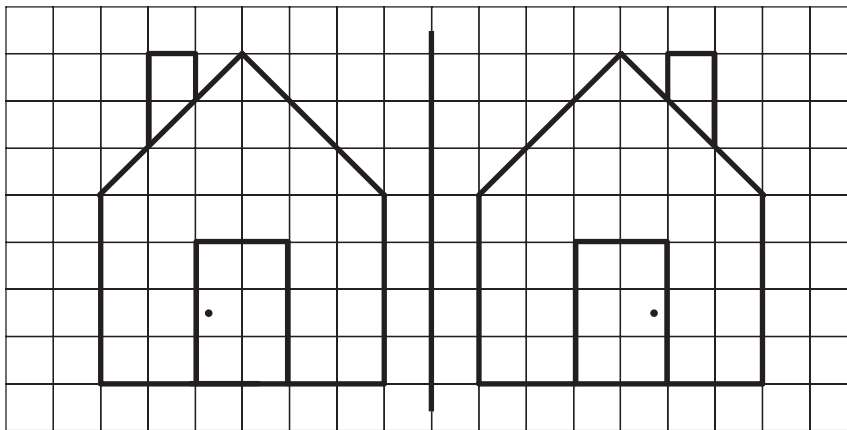30. The table shows the number of different-colored tiles Anita placed in a bag.

Tiles in Bag

Color	Number of Tiles in Bag
Red	6
Blue	11
Yellow	15
Green	5

Anita picked one tile from the bag without looking.

Which shows the colors listed in order from the least likely to be picked to the most likely?

○ A. green, red, yellow, blue

○ B. green, red, blue, yellow

○ C. yellow, blue, green, red

○ D. red, blue, yellow, green

31. The grid shows two shapes.

Shape 1   **Shape 2**
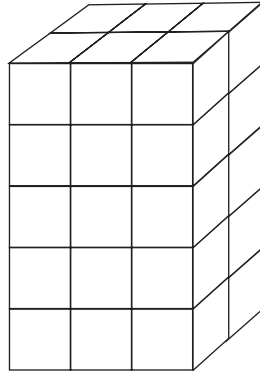
What transformation changed shape 1 to shape 2?

○ A. rotation (turn)

○ B. translation (slide)

○ C. reflection (flip)

○ D. no transformation

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32.   Torrance made a tower that is three cubes long, five cubes high and two cubes wide.

How many cubes in all did he use to make the tower?

○   A.   10

○   B.   22

○   C.   30

○   D.   31

33. A store sells rice in 3-pound and 5-pound bags. Jennie is responsible for packing 60 pounds of rice into the 3-pound bags, 5-pound bags or a combination of 3-pound and 5-pound bags. She needs to pack all 60 pounds of rice.
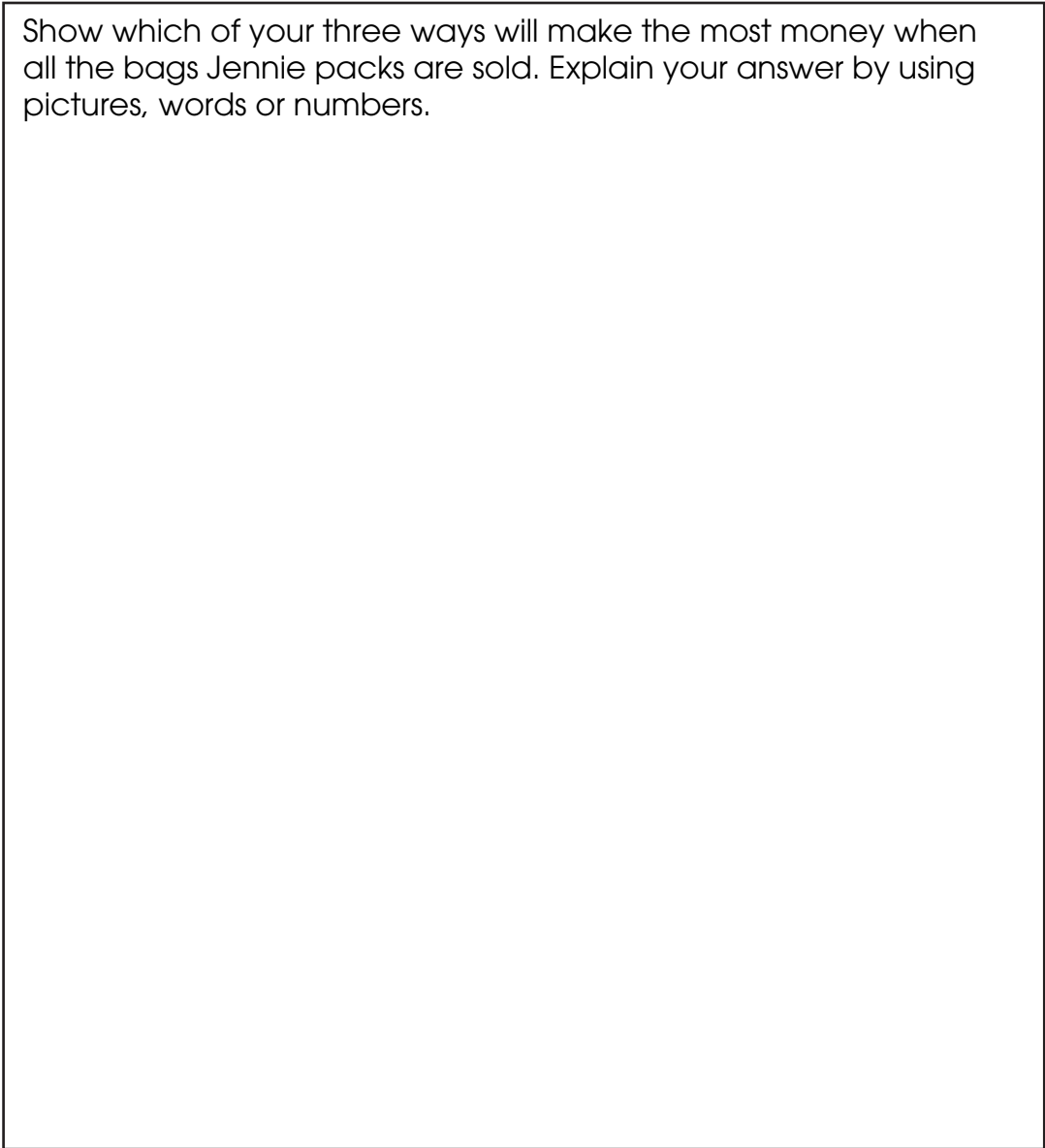
The prices for the bags of rice are shown in the chart.

Bags of Rice

Weight	Price
3 pounds	$4 a bag
5 pounds	$6 a bag

Show three ways Jennie can pack the 60 pounds of rice into bags. For each way, show the total number of bags for each weight she will have packed. Show or explain your answer by using pictures, words or numbers.

35

Show which of your three ways will make the most money when all the bags Jennie packs are sold. Explain your answer by using pictures, words or numbers.

34

34. Alice has 12 markers. Ben has half as many markers as Alice. *M* is the number of markers that Ben has.

    Which equation can Ben use to find the number of markers that he has?

    ○ A. $12 \div 2 = M$

    ○ B. $12 + 2 = M$

    ○ C. $12 \times 2 = M$

    ○ D. $12 - 2 = M$

35. Which would be measured in square inches?

    ○ A. the amount of juice in a can

    ○ B. the height of a flag pole

    ○ C. the area of a CD case
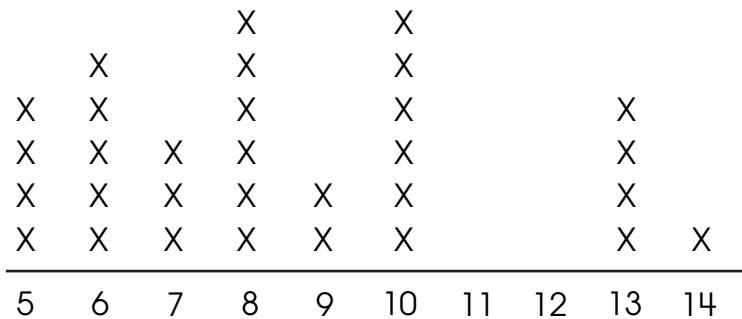
    ○ D. the length of a pencil

36. Which is a prime number between 20 and 30?

   ○ A. 21

   ○ B. 23

   ○ C. 25

   ○ D. 27

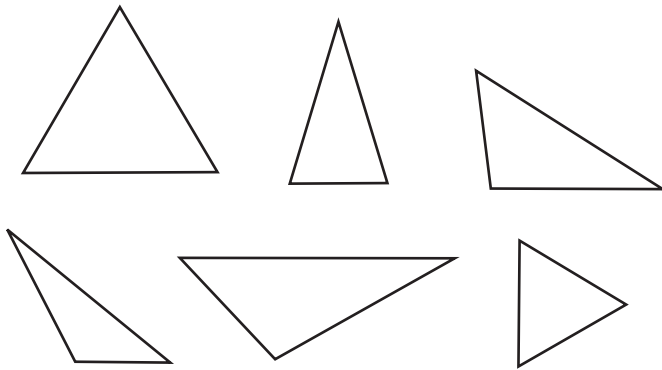37. Andrea made a line plot of the ages of children at summer camp.

Ages of Children at Summer Camp

```
                    X           X
            X       X           X
    X   X           X           X               X
    X   X   X   X   X           X               X
    X   X   X   X   X   X       X               X
    X   X   X   X   X   X                       X   X
    ─────────────────────────────────────────────────
    5   6   7   8   9   10  11  12  13  14
```

Which is true about the data in the line plot?

   ○ A. The data are spread out evenly.

   ○ B. The data have a hole between 10 and 13.

   ○ C. There is a clump of data between 10 and 13.

   ○ D. The range and the median are the same.
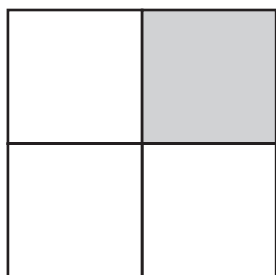
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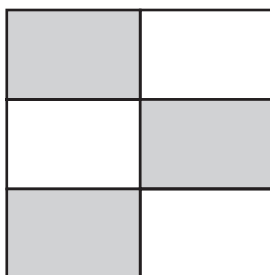
38. Six triangles are shown.

Circle each triangle that appears to be scalene.

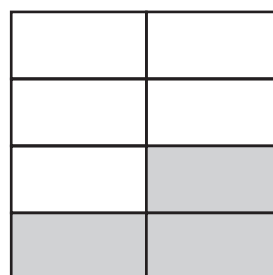Explain how you decided which triangles are scalene.

31

39. Four students shaded rectangles to represent different fractions.
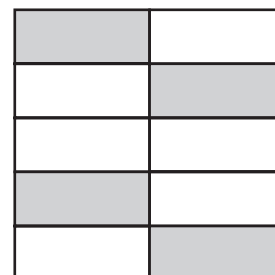

Fred $\frac{1}{4}$ Rob $\frac{3}{6}$ Mary $\frac{3}{8}$ Wanda $\frac{4}{10}$

Which fraction is greatest?

○ A. $\frac{1}{4}$

○ B. $\frac{3}{6}$

○ C. $\frac{3}{8}$

○ D. $\frac{4}{10}$

40. Susan saved 50 bottle caps for her school. She plans to save 2 more bottle caps each week.

Which expression tells the total number of bottle caps Susan saves after *w* weeks?

○ A. 50 + 2*w*

○ B. 50 + 2 + *w*

○ C. 50*w* + 2

○ D. 50*w* + 2*w*

41.   Sheila bought a new hamster cage.

        Which unit of measure would be used to describe the volume of the
        hamster cage?

        ○ A. cubic inches

        ○ B. yards

        ○ C. square inches

        ○ D. square feet

42.   Gavin bought a puzzle that costs $6.35. He gave the clerk a $10 bill.

        How much change should Gavin receive? _____

        Give an example of the bills and coins Gavin could receive
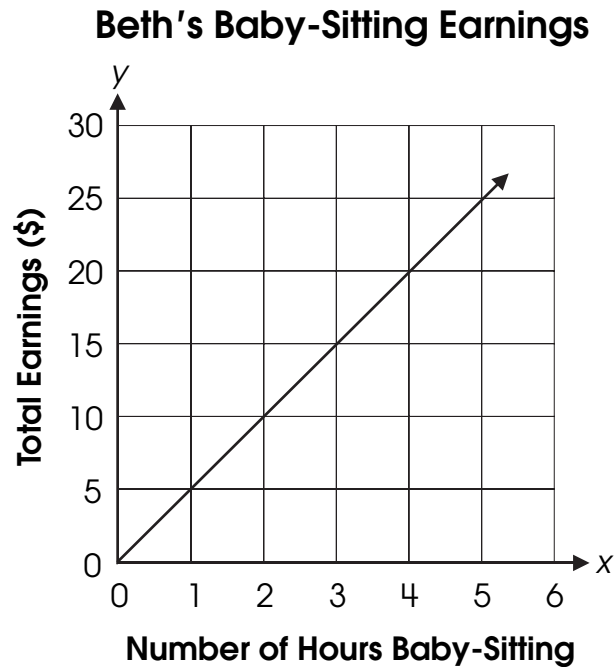   for change. Use numbers, pictures or words to show your work.

43. The shapes shown are part of a design.

What do all these shapes appear to have in common?

○ A. All have four right angles.

○ B. All have at least one set of parallel sides.

○ C. All have four equal angles.

○ D. All have at least one set of perpendicular lines.

44. The graph shows Beth's earnings while baby-sitting.

Beth's Baby-Sitting Earnings

Which statement describes how Beth's total earnings change as the number of hours of baby-sitting increases?

- ○ A. For every hour, the amount she earns doubles.
- ○ B. For every five hours, the amount she earns increases by $1.
- ○ C. For every five hours, the amount she earns increases by $10.
- ○ D. For every hour, the amount she earns increases by $5.

45. The elevation of Campbell Hill is 1,565 feet.

   What is this number rounded to the nearest hundred?

   ○ A. 1,500 feet

   ○ B. 1,550 feet

   ○ C. 1,600 feet

   ○ D. 2,000 feet

46. Calvin plans to plant one type of flower and one type of vegetable in his garden. He chooses the plants from the table shown.

Plants

Flowers	Vegetables
Roses	Carrots
Tulips	Peas

   Which list shows all the different combinations of one flower and one vegetable that Calvin can plant?

   ○ A. roses and carrots, roses and peas

   ○ B. roses and carrots, roses and peas, tulips and carrots, tulips and peas

   ○ C. roses and carrots, tulips and peas, roses and tulips, carrots and peas

   ○ D. roses and carrots, roses and peas, roses and tulips, tulips and carrots, tulips and peas, carrots and peas

STOP

DO NOT TURN THE PAGE

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