

Student Name:

School Name:

Teacher/Class:

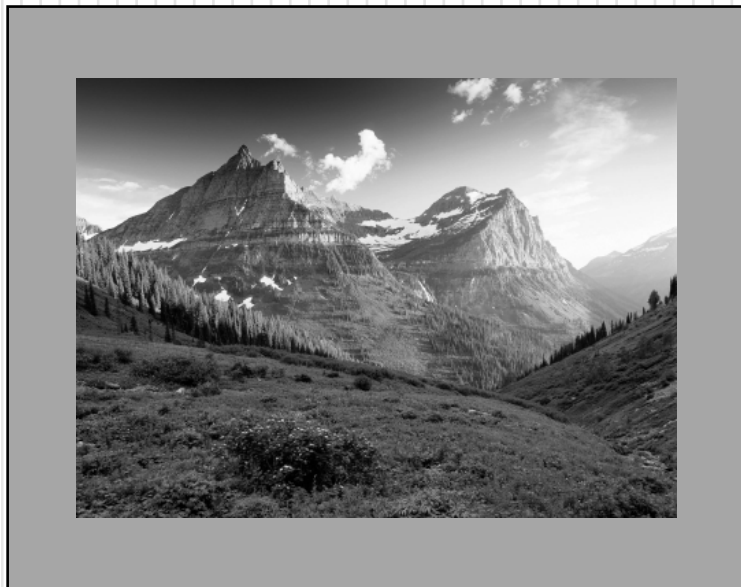
Montana

*Comprehensive Assessment
System (MontCAS, Phase 2 CRT)*

GRADE 6

FORM 1

SPRING 2006



OPI

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Mathematics

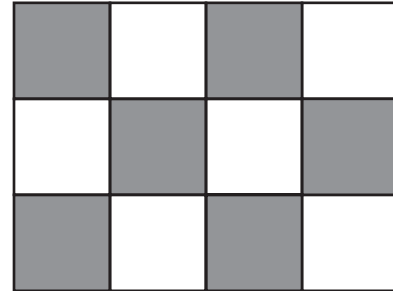
Session 1 (Calculator)

This test session includes multiple-choice questions and a question for which you must show your work or write out your answer. You may use a calculator during this session.

Mark your answers to questions 1 through 24 in the section marked “Mathematics—Session 1 (Calculator)” in your Student Response Booklet.

- Experts predict that the world population in the year 2020 will be approximately 7,515,000,000. How is this number read?
 - seven hundred thousand five hundred fifteen
 - seven million five hundred fifteen thousand
 - seven billion five hundred fifteen million
 - seven trillion five hundred fifteen billion
- At Our Town Video, the ratio of the numbers of video games to DVDs rented is about 2 to 5. If 140 video games were rented one day, about how many DVDs were rented that day?
 - 100
 - 350
 - 700
 - 980

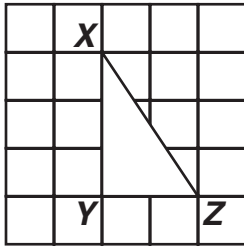
Use the rectangle below to answer question 3.



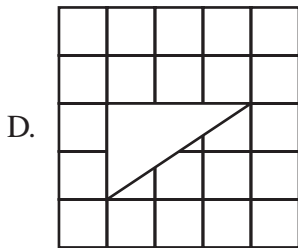
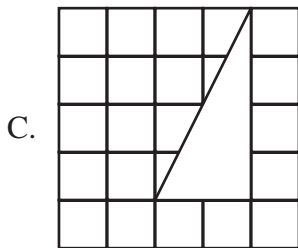
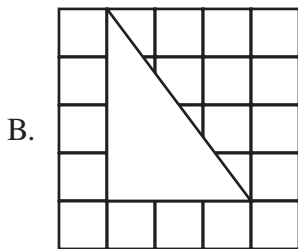
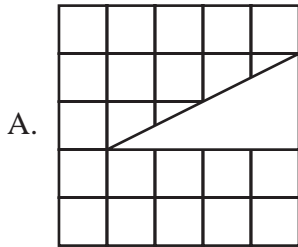
- Which fraction does **not** tell the part of the rectangle that is shaded?
 - $\frac{1}{2}$
 - $\frac{3}{4}$
 - $\frac{3}{6}$
 - $\frac{6}{12}$



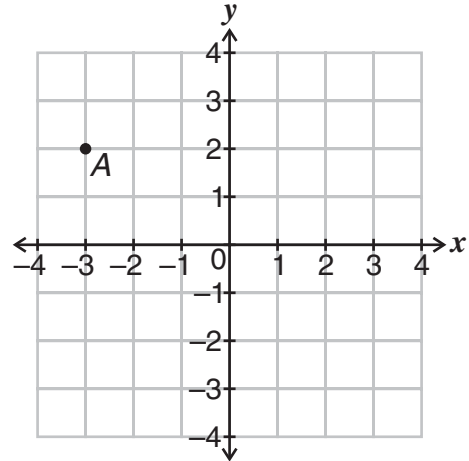
Use triangle XYZ on the grid below to answer question 4.



4. Which triangle is congruent to triangle XYZ?



5. A historical site is being mapped on the grid shown below.



An old bottle was found at point A. Which ordered pair tells the location of the bottle?

- A. (-3, 2)
- B. (2, -3)
- C. (-2, -3)
- D. (-3, -2)

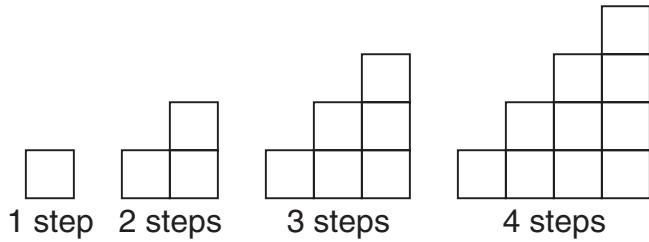
6. In the formula below, r stands for rate, d for distance, and t for time.

$$r = \frac{d}{t}$$

Tracy uses this formula to find the rate at which she jogs. One day she jogged 9 miles in 1.5 hours. What was her rate?

- A. 13.5 miles per hour
- B. 10.5 miles per hour
- C. 6 miles per hour
- D. 4 miles per hour

7. Bradley made the stairs shown below using blocks.



He made this chart to show the number of blocks he used for each set of stairs.

Number of Steps	Number of Blocks Used
1	1
2	3
3	6
4	10

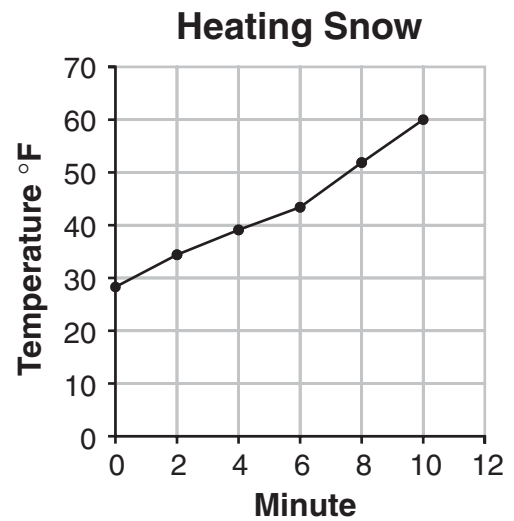
How many blocks will Bradley need to make a set of stairs with 12 steps?

- A. 36
 B. 48
 C. 72
 D. 78
8. Which two numbers have a greatest common factor of 6 and a least common multiple of 60?
- A. 12 and 15
 B. 24 and 15
 C. 12 and 30
 D. 24 and 30

9. Michelle bought a 2-liter bottle of soda to share with her 4 friends. She poured all the soda into 5 glasses with an equal amount in each glass. How much soda is in 1 glass?

- A. 0.4 milliliter
 B. 4 milliliters
 C. 40 milliliters
 D. 400 milliliters

10. Edward slowly heated a cup of snow for 10 minutes on low heat as part of a science experiment. He recorded the temperature every 2 minutes, as shown on the graph below.



What is the best estimate for the temperature after 7 minutes?

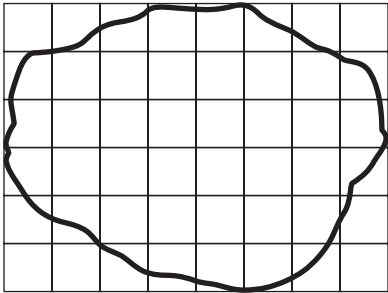
- A. 42°F
 B. 47°F
 C. 50°F
 D. 52°F




11. Of the 20,151 people living in Danville, 15,020 of them have lived there for more than ten years. Which fraction best represents the part of the population that has lived there for more than ten years?

- A. $\frac{2}{3}$
- B. $\frac{2}{5}$
- C. $\frac{3}{4}$
- D. $\frac{3}{5}$

12. The diagram below shows Kendra's fish pond.



 = 1 square foot





Which is the best estimate of the area of the fish pond?

- A. 24 square feet
- B. 36 square feet
- C. 44 square feet
- D. 48 square feet

Use the pattern below to answer question 13.



13. What will be the 57th figure in the pattern?

- A. 
- B. 
- C. 
- D. 

14. There are 8 different flavors of ice cream at an ice cream shop. The ice-cream cones are available in 2 sizes, regular and large. There are sugar cones and wafer cones. How many different ways can a person order one flavor of ice cream, one size of cone, and one type of cone?

- A. 12
- B. 16
- C. 24
- D. 32



15. The Hansons kept track of their grocery bills for six weeks. The chart below shows the total bill for each week, rounded to the nearest dollar.

Week	Grocery Bill Total
1	\$124
2	\$104
3	\$135
4	\$117
5	\$154
6	\$104

What is the Hansons' average weekly grocery bill?

- A. \$104
- B. \$120
- C. \$123
- D. \$126

Use the designs pictured below to answer question 16.



16. Which statement about the designs is true?
- A. They are reflections of each other.
 - B. They are rotations of each other.
 - C. They are translations of each other.
 - D. Each section is symmetrical.

17. Which figure would look exactly the same if it were rotated 90° ?

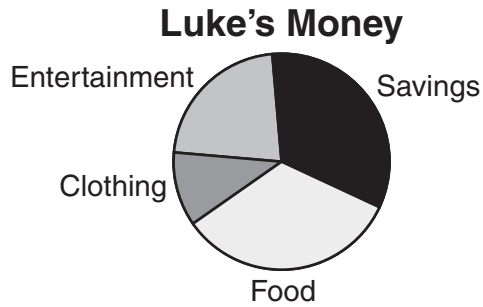
- A.
- B.
- C.
- D.

18. Of the 325 students at Lincoln Middle School, 4% have been on the straight-A honor roll all year. Which calculation could be used to find the number of students on the honor roll?

- A. 325×4
- B. 325×0.4
- C. 325×0.04
- D. 325×0.004



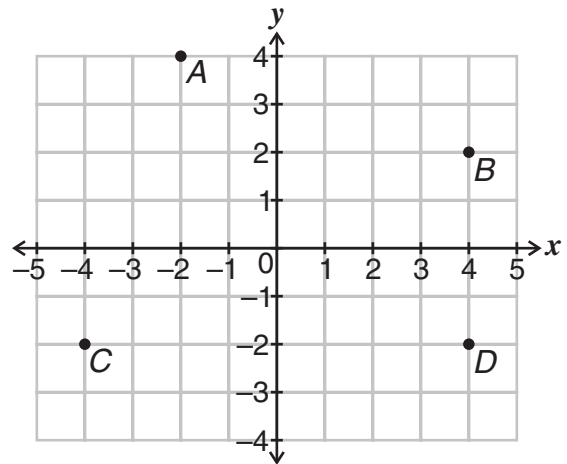
19. The circle graph below shows what Luke does with the money he earns cutting grass.



Which is the best estimate?

- A. Luke spends about 25% of his money on food.
 - B. Luke spends about 50% of his money on entertainment and clothing.
 - C. Luke saves about a third of the money he makes.
 - D. Luke spends about a fourth of his money on clothing.
20. Doctors estimate that a child's adult height will be about twice his or her height at age two. Which equation can be used to estimate the adult height, a , of a child whose height at age two is represented by c ?
- A. $a = 2c$
 - B. $a = 2 + c$
 - C. $c = 2a$
 - D. $c = 2 + a$

21. Brent is using the coordinate grid below to plan a maze for the snow festival. A snowman is located at $(4, -2)$.



Which point represents the snowman's location?

- A. point A
 - B. point B
 - C. point C
 - D. point D
22. The formula below is used to find the distance in feet, d , that a falling object travels in t seconds.

$$d = 16t^2$$

How far does a falling object travel in 10 seconds?

- A. 160 feet
- B. 320 feet
- C. 1600 feet
- D. 3200 feet



23. Joelyn has saved \$45. She decides to save one-half of her \$5 allowance each week. Which chart correctly shows her savings over a 12-week period?

A.

Week	Amount Saved
3	\$52.50
6	\$60.00
9	\$67.50
12	\$75.00

B.

Week	Amount Saved
3	\$45.00
6	\$47.50
9	\$50.00
12	\$52.50

C.

Week	Amount Saved
3	\$47.50
6	\$50.00
9	\$52.50
12	\$55.00

D.

Week	Amount Saved
3	\$45.00
6	\$52.50
9	\$60.00
12	\$67.50

24. Two giant pumpkins were entered in the Belleview County Fair. The winning pumpkin weighed 516 pounds 7 ounces. The other pumpkin weighed 512 pounds 9 ounces. How much more did the winning pumpkin weigh?

- A. 3 pounds 8 ounces
- B. 3 pounds 14 ounces
- C. 4 pounds 2 ounces
- D. 4 pounds 14 ounces



Write your answer to question 25 in the space provided for it in your Student Response Booklet. Show all of your work.

25. Dominic's test scores for math are 55, 82, 92, 78, 100, 96, and 78. Dominic can choose whether to use the mean, median, or mode of his test scores for his semester grade.
- Explain which measure Dominic should choose to receive the highest grade—the mean, median, or mode. Be sure to support your answer with a complete explanation.
 - The teacher gave one more test before the end of the semester. Dominic's score on the last test was 91. Explain which measure Dominic should choose now to receive the highest grade. Be sure to support your reasoning with a complete explanation.

Mathematics

Session 2A (Calculator)

This test session includes multiple-choice questions and a question for which you must show your work or write out your answer. You may use a calculator during this session.

Mark your answers to questions 26 through 33 in the section marked “Mathematics—Session 2A (Calculator)” in your Student Response Booklet.

26. Ali uses this chart to show customers how much it will cost to rent a carpet cleaning machine.

Bottles of Shampoo	Total Rental Cost
0	\$25
2	\$30
4	\$35
6	\$40

The carpet machine rental fee is \$25 plus the cost of shampoo. Based on the chart, what is the cost per bottle of shampoo?

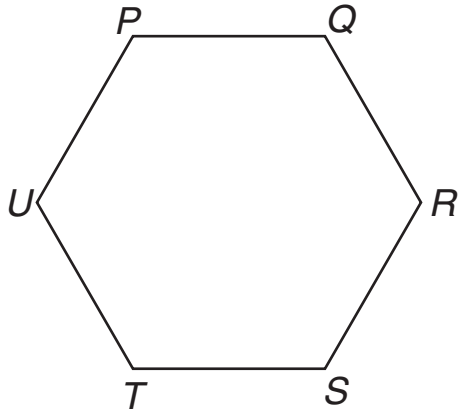
- A. \$2.00
- B. \$2.50
- C. \$3.00
- D. \$5.00

27. The recipe for Deep Purple Punch is 2 parts grape juice and 3 parts ginger ale. Nancy needs to make more than one batch. Which combination of liquids could Nancy use and still follow the recipe?
- A. 3 parts grape juice and 4 parts ginger ale
 - B. 4 parts grape juice and 5 parts ginger ale
 - C. 4 parts grape juice and 6 parts ginger ale
 - D. 5 parts grape juice and 6 parts ginger ale

28. The probability that Lu will get a hit when she goes to bat is 30%. She expects to go to bat 70 times. How many hits should she expect to get?
- A. 21 hits
 - B. 30 hits
 - C. 35 hits
 - D. 49 hits



29. The figure below is a regular hexagon.



Which segment would divide the hexagon into two trapezoids?

- A. \overline{PT}
- B. \overline{US}
- C. \overline{TR}
- D. \overline{RU}

30. To find average speed, use the formula $d = rt$, where

- d is distance in miles,
- r is speed in miles per hour, and
- t is time in hours.

Lindsey biked 35 miles in 2 hours. What was her average speed?

- A. 44.4 miles per hour
- B. 43 miles per hour
- C. 17.5 miles per hour
- D. 9.0 miles per hour



Mathematics

Session 2B (No Calculator)

This test session includes multiple-choice questions and questions for which you must show your work or write out your answer. You may NOT use a calculator during this session.

Mark your answers to questions 35 through 41 in the section marked “Mathematics—Session 2B (No Calculator)” in your Student Response Booklet.

35. The Clark family is moving. Their new home is 415 miles away. If they average about 58 miles per hour, which is the best estimate of how long it will take them to get there?

- A. 7 hours
- B. 8 hours
- C. 9 hours
- D. 10 hours

36. Manda researched the lowest temperatures ever recorded in Colorado, Montana, South Dakota, and Wyoming. She recorded the temperatures in the chart below.

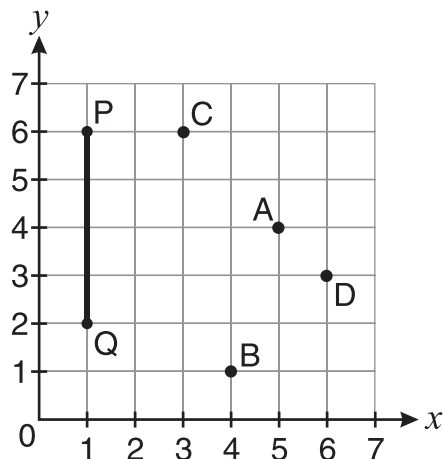
Lowest Temperature

State	Coldest Temperature
Colorado	−61°F
Montana	−70°F
South Dakota	−58°F
Wyoming	−63°F

Which state recorded the coldest temperature?

- A. Colorado
- B. Montana
- C. South Dakota
- D. Wyoming

Use the diagram below to answer question 37.



37. Which is a right triangle?

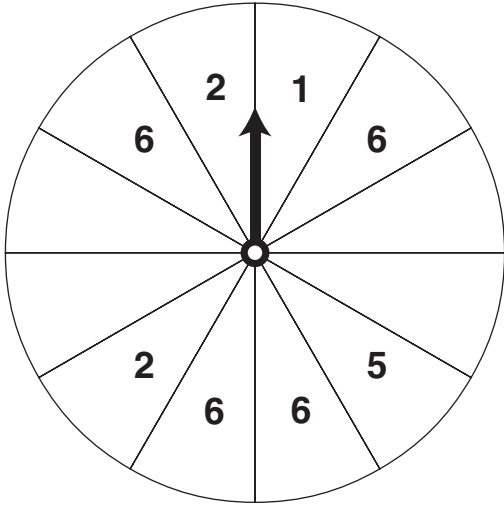
- A. $\triangle PQA$
- B. $\triangle PQB$
- C. $\triangle PQD$
- D. $\triangle PQC$

38. Sarah wants to buy some snack crackers. She is buying bulk crackers that cost \$3.79 per pound. Sarah has \$11.78 that she can spend. Which is the best estimate of how many pounds of crackers Sarah can buy?

- A. 5 pounds
- B. 4 pounds
- C. 3 pounds
- D. 2 pounds



39. Kara has a spinner with equal sections like the one shown below.



If she spins once, what is the probability that she will spin a 6?

- A. $\frac{1}{12}$
- B. $\frac{1}{3}$
- C. $\frac{1}{4}$
- D. $\frac{1}{2}$



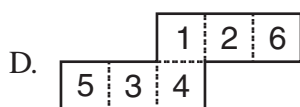
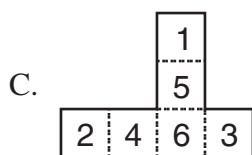
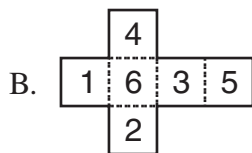
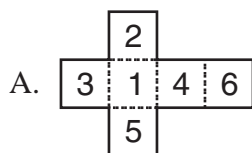
Mathematics

Session 3 (No Calculator)

This test session includes multiple-choice questions and questions for which you must show your work or write out your answer. You may NOT use a calculator during this session.

Mark your answers to questions 44 through 64 in the section marked “Mathematics—Session 3 (No Calculator)” in your Student Response Booklet.

44. Hadley is making a number cube with the numbers placed so that the sum of the opposite sides is always 7. Which net can be folded on the dotted lines to make Hadley’s number cube?



45. Members of the bike club are on a 52.5-kilometer bike trip. They have traveled 24.75 kilometers so far. How many kilometers do they have left?

- A. 19.50 kilometers
- B. 27.75 kilometers
- C. 27.85 kilometers
- D. 32.25 kilometers

46. Mr. Jackson is using the formula below to determine the amount, d , that he will donate to the school for the number of miles, m , that Kevin and Cody each walk in the walk-a-thon.

$$d = \frac{m}{3}$$

Kevin walked twice as far as Cody. How does the amount Mr. Jackson will donate for Kevin’s walk compare with the amount he will donate for Cody’s walk?

- A. It is $\frac{1}{3}$ as much.
- B. It is $\frac{1}{2}$ as much.
- C. It is 2 times as much.
- D. It is 3 times as much.



47. The chart below shows how much the Party Haven charges for pizza parties for different numbers of people.

Number of People	Cost
5	\$ 45
8	\$ 60
12	\$ 80
20	\$120

If n stands for the number of people and C stands for the cost in dollars, which equation represents the information in the chart?

- A. $C = 5n + 20$
 B. $C = n + 45$
 C. $C = 5n + 40$
 D. $C = 2n + 35$

48. Compute:

$$\frac{2}{3} \times \left(\frac{1}{2} - \frac{1}{3} \right)$$

- A. 0
 B. $\frac{1}{9}$
 C. $\frac{1}{2}$
 D. 4

49. The chart below shows prices for some of the shirts on sale at ClothesMart.

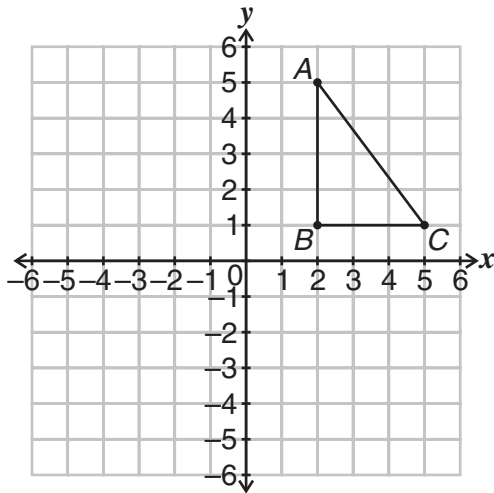
All Shirts on Sale!! Sample Sale Prices	
Regular Price	Sale Price
\$ 8.00	\$ 6.00
\$12.00	\$ 9.00
\$16.00	\$12.00
\$20.00	\$15.00

Based on the pattern in the chart, what would be the sale price for a shirt with a regular price of \$22.00?

- A. \$16.50
 B. \$17.00
 C. \$17.50
 D. \$18.00
50. Jana is making cookies using a recipe that calls for $\frac{3}{4}$ cup of sugar. If she doubles the recipe, how much sugar should she use?
- A. $1\frac{1}{4}$ cups
 B. $1\frac{3}{8}$ cups
 C. $1\frac{1}{2}$ cups
 D. $1\frac{3}{4}$ cups



Use the grid below to answer question 51.



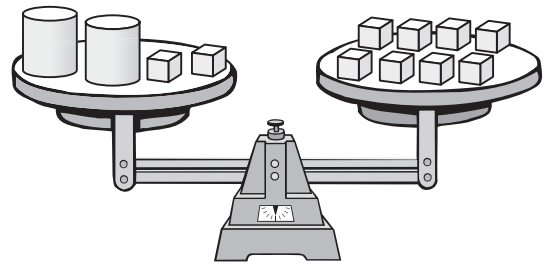
51. Triangle ABC will be moved up 1 unit and left 6 units. One of the new vertices will be at $(-4, 2)$. Where will the other vertices be located?

- A. $(6, -4)$ and $(2, -1)$
- B. $(5, -4)$ and $(2, -1)$
- C. $(-4, 5)$ and $(-1, 2)$
- D. $(-4, 6)$ and $(-1, 2)$

52. Which is equal to $\frac{3}{8} \times \left(\frac{3}{3} + \frac{8}{3}\right)$?

- A. 1
- B. $1\frac{3}{8}$
- C. 2
- D. $3\frac{1}{24}$

53. The scale shown below is balanced.



How many cubes weigh the same as one cylinder?

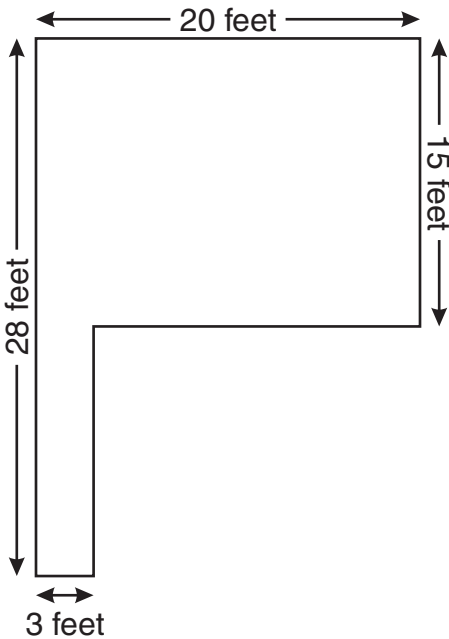
- A. 5
- B. 4
- C. 3
- D. 2

54. The 16 members of Central Middle School's math team each took a test to see who should represent the school in the next tournament. The students with the top 50% of the scores will go to the tournament. Based on all 16 scores, the students who go to the tournament will all have scores at or above which of these statistics?

- A. median
- B. mean
- C. mode
- D. range



55. Mr. and Mrs. Canton are going to carpet their hallway and living room. This is the sketch they brought to the carpet store.



What is the total area that they plan to carpet?

- A. 300 square feet
 - B. 339 square feet
 - C. 351 square feet
 - D. 384 square feet
56. Rene went to the grocery store to buy juice. Which juice has the lowest price per ounce?
- A. 32-ounce can for \$2.08
 - B. 48-ounce bottle for \$2.88
 - C. 64-ounce bottle for \$3.20
 - D. ten-pack of 6-ounce boxes for \$3.30

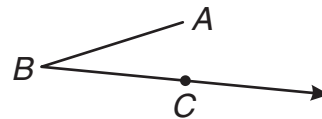
57. The Rose Bowl in Pasadena, California, can seat 93,000 people. If the stadium is 80% full, which is the best estimate of the number of people in the stadium?

- A. 70,000
- B. 75,000
- C. 78,000
- D. 80,000

58. The cafeteria workers at Highland Middle School are making punch for the awards banquet. The recipe calls for 2 gallons of sparkling water. Sparkling water comes in 1-quart bottles. About how many bottles do they need for the recipe?

- A. 8
- B. 6
- C. 4
- D. 2

59. The model below is made up of two figures.

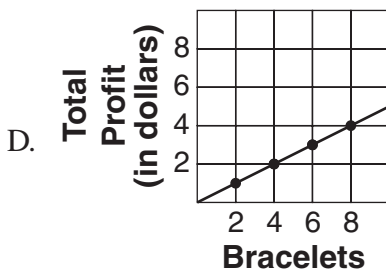
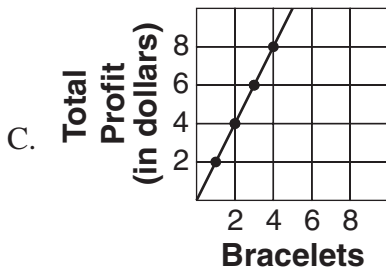
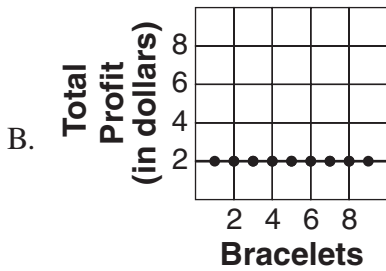
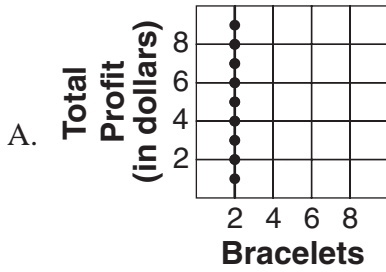


What are the two figures?

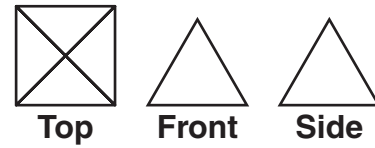
- A. lines AB and BC
- B. rays AB and BC
- C. line segment AB and ray BC
- D. line segment AB and line BC



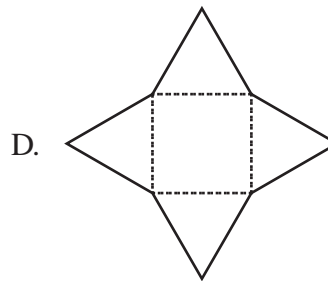
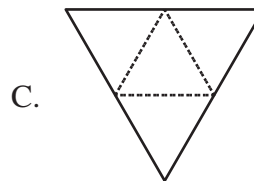
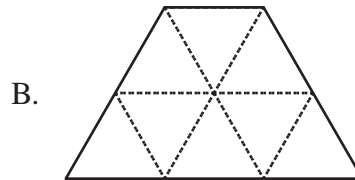
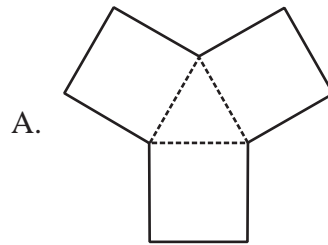
60. Jill makes a \$2 profit on every friendship bracelet she sells. Which graph shows the relationship between the total profit and the number of bracelets sold?



61. The top, front, and side views of a solid figure are shown below.



Which net can be folded on the dotted lines to create this solid figure?



62. Angela is writing a research paper on vehicles. She wants to include a line graph in her paper. Which data would best be displayed using a line graph?
- A. the average cost of a vehicle over the last 10 years
 - B. the number of people who drive 0–9 miles per day, 10–19 miles per day, etc.
 - C. the number of vehicles on the road that are minivans, cars, or trucks
 - D. the percent of vehicles on the road that are a certain color
63. A box of ice pops has 3 grape, 3 cherry, 3 banana, and 3 orange ice pops. James took a cherry ice pop out of the box. Then Renee reached into the box without looking and took an ice pop. What is the chance that Renee will get one of her favorite flavors, grape or cherry?
- A. 2 out of 11
 - B. 2 out of 12
 - C. 5 out of 11
 - D. 5 out of 12
64. Jim wants to make a sandbox for his daughter. The sandbox measures 4 feet long by 5 feet wide by 1 foot deep. He wants the sand to be only 6 inches deep. How much sand should Jim buy?
- A. 10 cubic feet
 - B. 12 cubic feet
 - C. 14 cubic feet
 - D. 29 cubic feet



Write your answers to questions 65 through 67 in the spaces provided in your Student Response Booklet. Show all of your work.

65. Compute:

$$48.51 \div 3.15$$

Show all of your work.

66. Compute:

$$0.2 \times (7.57 + 36.9)$$

Show all of your work.

67. Compute:

$$12 \div 3 \times 4 - 1 + 6 \div 3$$

Show all of your work.



Write your answer to question 68 in the space provided for it in your Student Response Booklet. Show all of your work.

68. The number of people living in Cliff City has changed a lot over the years.

- In 1940, the population was 20,058.
 - In 1960, the population was 3,458 less than it was in 1940.
 - In 1980, the population had grown to 1.3 times what it was in 1960.
 - In 2000, the population was 10% greater than it had been in 1980.
- a. What was the population of Cliff City in 1960? Show all of your work.
 - b. What was the population in 1980? Show all of your work.
 - c. What was the population in 2000? Show all of your work.