

Student Name:

School Name:

Teacher/Class:

*Montana*  
*Comprehensive Assessment*  
*System (MontCAS CRT)*

GRADE 6  
COMMON RELEASED ITEMS  
SPRING 2009



**OPI**

OFFICE OF PUBLIC INSTRUCTION



# Mathematics

## Session 1 (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 in the section marked "Mathematics—Session 1 (No Calculator)" in your Student Response Booklet.

1. What is the **greatest** common factor of 24 and 30?

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

2. Which expression is equivalent to  $6^3$ ?

- A.  $6 \times 3$
- B.  $6 \times 6 \times 6$
- C.  $3 \times 3 \times 3 \times 3 \times 3 \times 3$
- D.  $6 \times 6 \times 6 \times 6 \times 6 \times 6$

4. Frances uses two different types of flour to bake a loaf of bread, as shown in the chart below.

**Flour for a Loaf of Bread**

Type of Flour	Amount of Flour (in cups)
Wheat	$1\frac{1}{2}$
Rye	$\frac{3}{4}$

What is the total amount of flour Frances uses to bake a loaf of bread?

- A.  $1\frac{1}{8}$  cups
- B.  $1\frac{4}{6}$  cups
- C. 2 cups
- D.  $2\frac{1}{4}$  cups



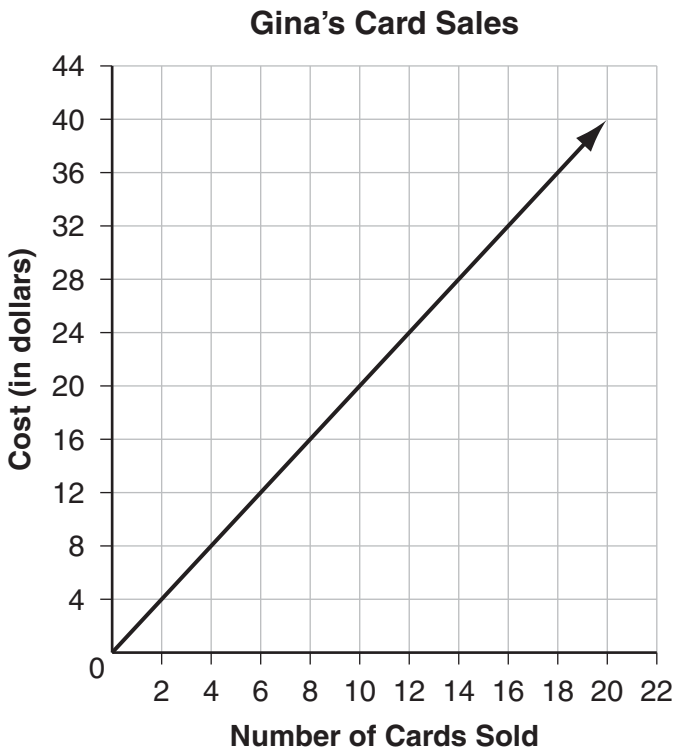
5. Study the expression below.

$$6 + 3 \times 7 - 4$$

What is the value of the expression?

- A. 59
- B. 27
- C. 23
- D. 15

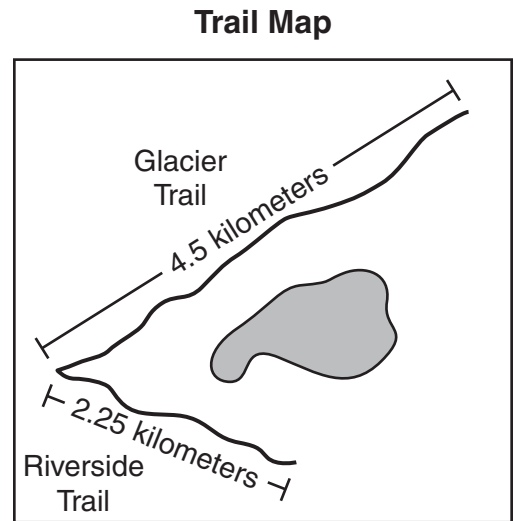
9. Gina made some cards to sell. The graph below shows the cost for different numbers of cards.



What is the cost for one card?

- A. \$0.50
- B. \$1.00
- C. \$2.00
- D. \$4.00

12. Study the map below.



How much longer, in kilometers, is Glacier Trail than Riverside Trail?

- A. 2.00 kilometers
- B. 2.20 kilometers
- C. 2.25 kilometers
- D. 2.35 kilometers



14. The chart below shows the ticket sales for a high school musical for three nights.

**Ticket Sales for a High School Musical**

Night	Tickets Sold
Friday	305
Saturday	395
Sunday	300

Approximately what fraction of the total ticket sales for these three nights is for Saturday night?

- A.  $\frac{1}{2}$
- B.  $\frac{2}{5}$
- C.  $\frac{1}{3}$
- D.  $\frac{3}{10}$

16. Sharon has covered 40% of the kitchen floor with tile. The kitchen floor has an area of 60 square feet. How many square feet has Sharon covered with tile?

- A. 18 square feet
- B. 20 square feet
- C. 24 square feet
- D. 26 square feet

17. Mr. Erikson and Ms. Jennings are sharing the cost of \$1120 for one full-page advertisement in a newspaper. Mr. Erikson will pay  $\frac{5}{8}$  of the cost. How much will he pay?

- A. \$1792.00
- B. \$ 700.00
- C. \$ 687.50
- D. \$ 600.00

**Write your answers in the spaces provided in your Student Response Booklet.**

18. What is the value of the expression  $20x - 5$  when  $x = 3$ ?

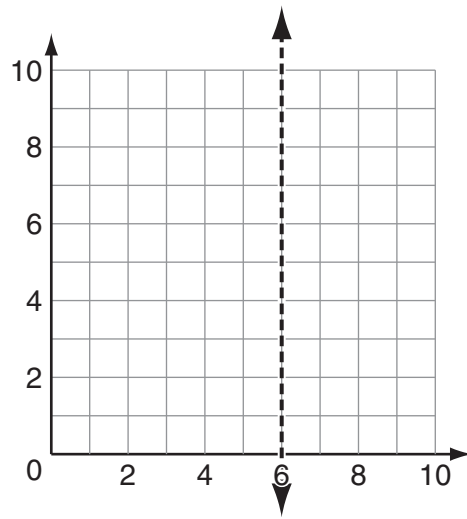
19. Compute. Express your answer in **lowest terms**.

$$\frac{3}{9} \times \frac{6}{3}$$



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

23. Copy the coordinate grid below into your Student Response Booklet. Include the dotted line at  $x = 6$ .



a. The coordinates of the vertices of triangle  $DEF$  are given below.

- $D (3, 10)$
- $E (5, 8)$
- $F (3, 7)$

Draw triangle  $DEF$  on your grid. Be sure to label each vertex with the appropriate letter.

- b. Draw the image of triangle  $DEF$  after it is reflected over the dotted line. Name the new triangle  $HIJ$  so that  $H$  is the image of  $D$  and  $I$  is the image of  $E$ .
- c. Another triangle,  $MNO$ , is created by translating triangle  $DEF$ . The vertices of the new triangle are  $M (1, 6)$ ,  $N (3, 4)$ , and  $O (1, 3)$ .

Describe the translation that moves triangle  $DEF$  to triangle  $MNO$ . Be sure to list the directions and distances that are used in the translation.



# Mathematics

## Session 2 (Calculator)

This test session includes multiple-choice questions. You may use a calculator during this session.

Mark your answers in the section marked "Mathematics—Session 2 (Calculator)" in your Student Response Booklet.

24. Heather wants to buy a jewelry box for \$15 and some bracelets for \$3 each. Which expression shows the total cost of the jewelry box and  $b$  bracelets?

A.  $15 + 3b$   
B.  $15b + 3$   
C.  $(15 + 3)b$   
D.  $(15 \times 3) + b$

28. The chart below shows the number of people who went sledding at a park on seven different days.

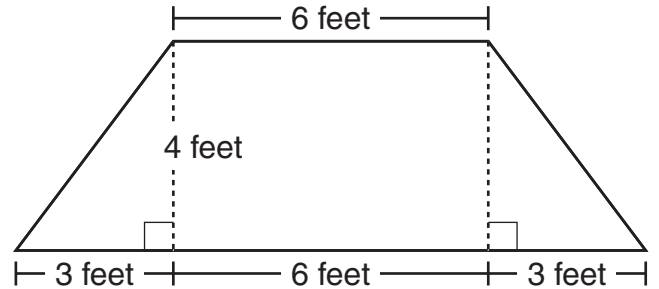
**Sledding at the Park**

Day	Number of People
Monday	26
Tuesday	10
Wednesday	45
Thursday	10
Friday	57
Saturday	34
Sunday	42

What is the mean (average) number of people who went sledding during these seven days?

A. 10  
B. 16  
C. 32  
D. 34

35. Study the trapezoid below.

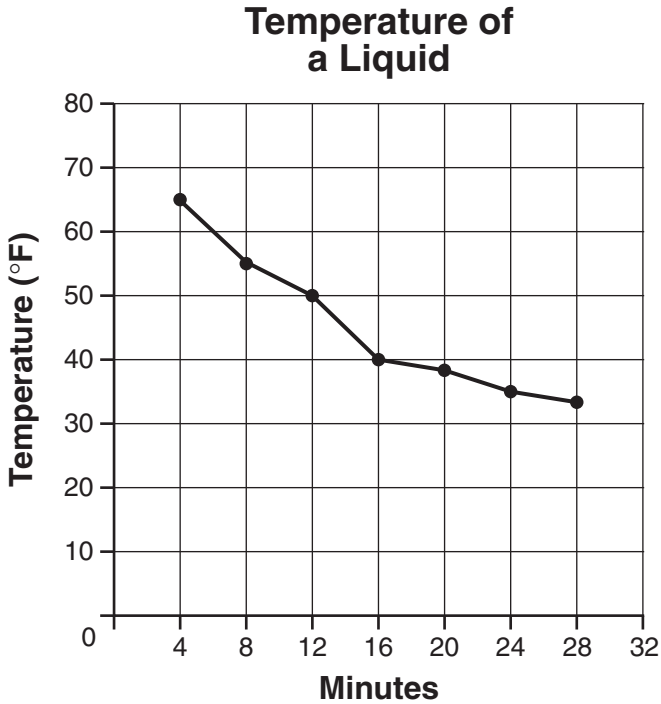


What is the area of the trapezoid?

- A. 22 square feet  
B. 30 square feet  
C. 36 square feet  
D. 48 square feet
36. There are 25 students in a math class, 10 of whom are girls. The teacher puts all the students' names in a hat and randomly chooses one. What is the probability that the teacher will pick a boy's name?
- A.  $\frac{1}{15}$   
B.  $\frac{10}{25}$   
C.  $\frac{15}{25}$   
D.  $\frac{10}{15}$



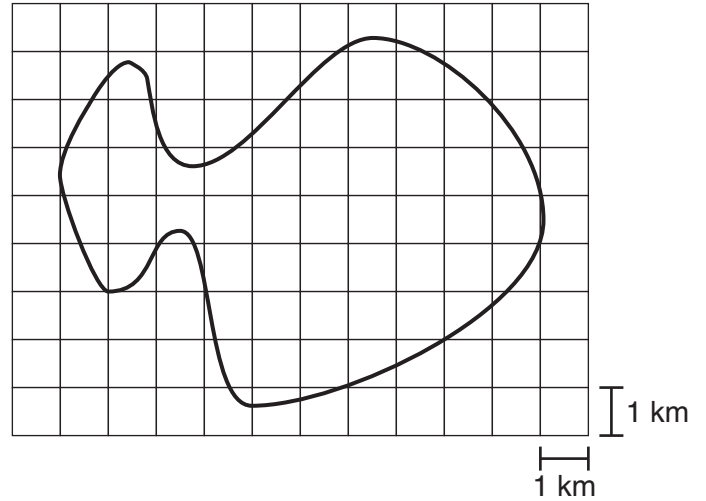
37. Haley recorded the temperature of a liquid every four minutes in the graph shown below.



What happens to the temperature of the liquid between minute 8 and minute 16?

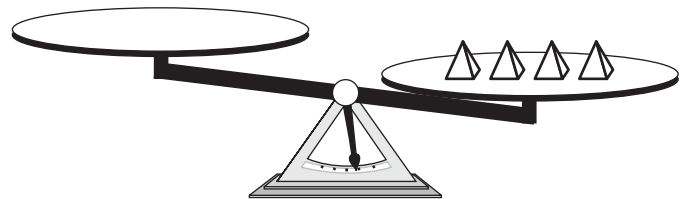
- A. It decreases by 15°F.
- B. It increases by 15°F.
- C. It decreases by 8°F.
- D. It increases by 8°F.

43. Study the map of a lake shown on the grid below.



Which is the **best** estimate of the area of the lake?

- A. 50 square kilometers
  - B. 80 square kilometers
  - C. 160 square kilometers
  - D. 320 square kilometers
47. Greg put 4 pyramids on the right side of a balance scale, as shown below.



Each pyramid weighs 3 pounds. Greg has cubes that weigh 2 pounds each. How many cubes should he put on the left side of the scale so both sides weigh the same?

- A. 5
- B. 6
- C. 8
- D. 12



# Mathematics

## Session 3 (Calculator)

This test session includes multiple-choice questions. You may use a calculator during this session.

Mark your answers in the section marked "Mathematics—Session 3 (Calculator)" in your Student Response Booklet.

50. The table below shows the distances Griffin swam using different strokes during swim practice.

**Griffin's Swim Practice**

Stroke	Distance (in meters)
Breaststroke	800
Freestyle	2000
Backstroke	1200

What is the total distance, in kilometers, Griffin swam on Monday?

- A. 0.4 kilometers
- B. 4 kilometers
- C. 40 kilometers
- D. 400 kilometers

51. At a sandwich shop, customers can choose from
- 2 types of bread,
  - 2 types of meat, and
  - 3 types of cheese.

How many different ways can a customer choose 1 type of bread, 1 type of meat, and 1 type of cheese?

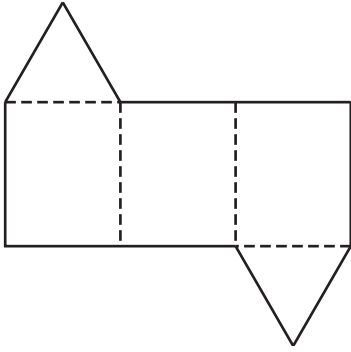
- A. 3
- B. 6
- C. 7
- D. 12

52. Kim practiced the piano for 5 days. On the first day, she practiced for 22 minutes. Each of the following days, she practiced 6 minutes more than the previous day. How many minutes did Kim practice in all?
- A. 116 minutes
  - B. 124 minutes
  - C. 137 minutes
  - D. 170 minutes





57. Raul folded the net shown below along the dotted lines.



What three-dimensional shape did Raul make?

- A. triangular prism
- B. rectangular prism
- C. triangular pyramid
- D. rectangular pyramid

59. Study the expression below.

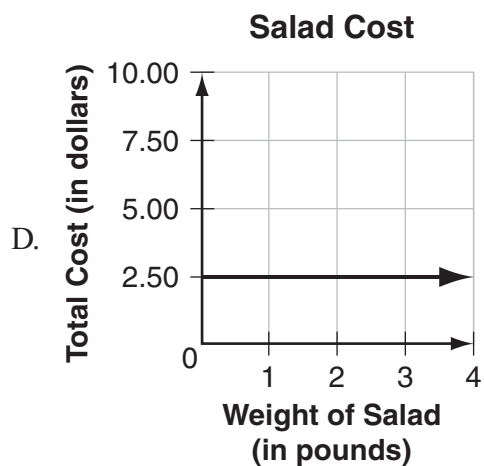
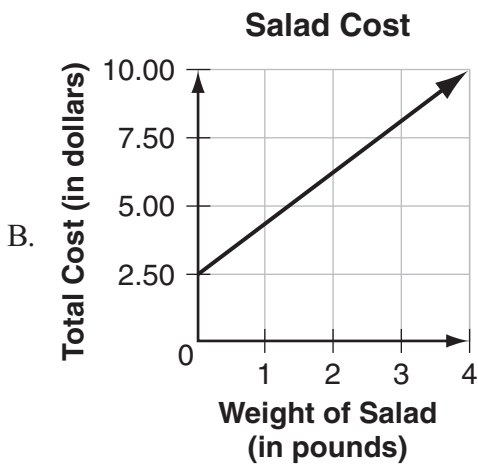
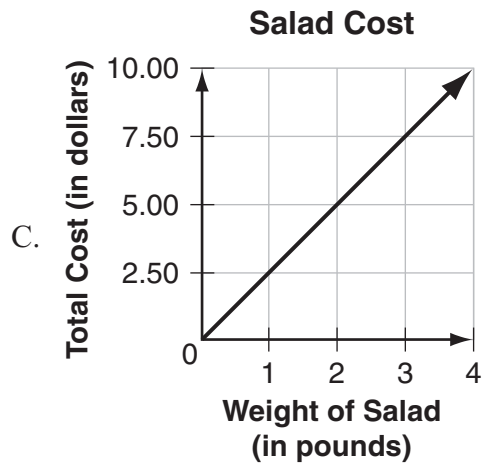
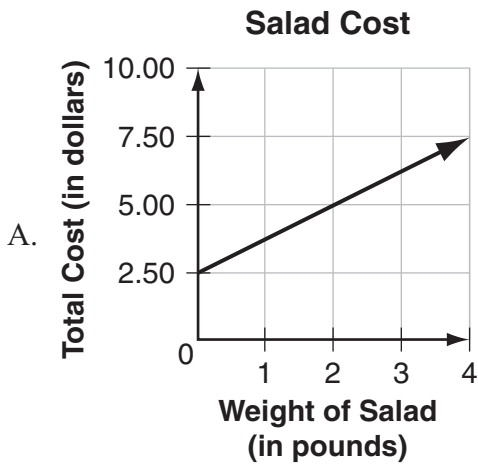
$$(36 + 27) \times 3$$

What is another way to write this expression?

- A.  $(36 + 3) \times (27 + 3)$
- B.  $(36 \times 3) \times (27 \times 3)$
- C.  $(36 \times 3) + (27 \times 3)$
- D.  $(36 + 3) + (27 + 3)$



61. Mr. Castel pays \$2.50 per pound for a salad made at a salad bar. Which graph shows the total cost he will pay for a salad made at the salad bar?



68. The table below shows the number of students in each class that are meeting in the library for a school project.

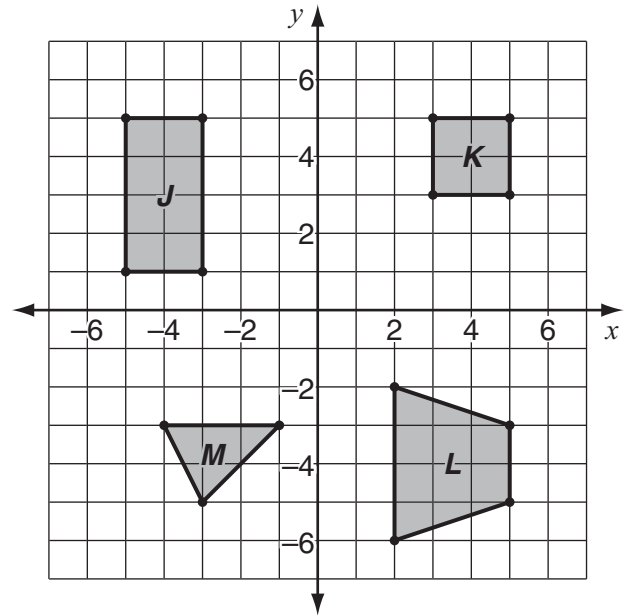
**Meeting in the Library**

Class	Number of Students
Mr. Bengston	19
Ms. Jacobs	23
Ms. Myka	22
Mr. Nelson	28

In the library, 6 students can sit at 1 table. What is the **fewest** number of tables needed to seat all of the students?

- A. 23
- B. 16
- C. 15
- D. 12

69. Ken plotted the shapes on the coordinate grid shown below.

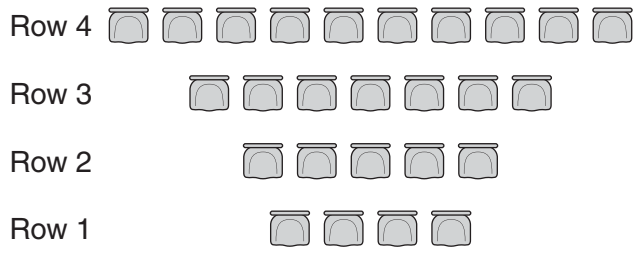


Which shape has a vertex at  $(-3, 5)$ ?

- A. shape *J*
- B. shape *K*
- C. shape *L*
- D. shape *M*



71. Shane is putting chairs in rows, as shown below.



If the pattern continues, how many chairs will be in Row 7?

- A. 19
- B. 21
- C. 22
- D. 25

72. The cook in a school cafeteria wants to survey the students to determine which school lunch is the most popular. Which question would be **best** for the cook to ask the students?

- A. Do you eat school lunch when spaghetti is served?
- B. Which school lunch do you like the most?
- C. Do you like pizza better than tacos?
- D. What is your favorite food?