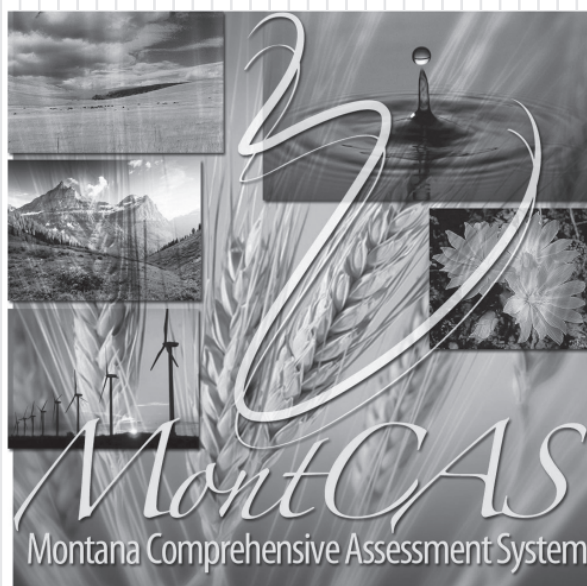


# *Montana Comprehensive Assessment System (MontCAS CRT)*

GRADE 6  
COMMON RELEASED ITEMS  
SPRING 2010



[opi.mt.gov](http://opi.mt.gov)

Montana  
**Office of Public Instruction**  
Denise Juneau, State Superintendent

## Mathematics (No Calculator)

1. A company has 13 empty water towers. Each tower can hold up to 984 gallons of water. How many gallons of water will it take to completely fill all of the empty towers?

A. 12,582 gallons  
B. 12,592 gallons  
C. 12,782 gallons  
D. 12,792 gallons

2. The owner of a pet store orders dog food using the chart shown below.

**Prices of Dog Food**

Size of Bag	Dog Food Weight (in pounds)
Small	10.25
Medium	18.75
Large	37.50

The owner ordered 2 small bags, 4 medium bags, and 1 large bag. How many pounds of dog food did the owner order in all?

A. 133 pounds  
B. 129 pounds  
C. 99.25 pounds  
D. 65.50 pounds

3. Abby is cutting a strip of ribbon  $\frac{1}{4}$  inch wide from a strip of ribbon  $\frac{5}{6}$  inch wide. What will be the width of the leftover strip of ribbon?

A.  $\frac{13}{24}$  inch  
B.  $\frac{7}{12}$  inch  
C.  $\frac{4}{6}$  inch  
D.  $1\frac{1}{12}$  inches

4. Which set of numbers is ordered from least to greatest?

A.  $\frac{24}{10}$ ,  $2\frac{6}{8}$ , 2.3  
B.  $2\frac{6}{8}$ , 2.3,  $\frac{24}{10}$   
C. 2.3,  $2\frac{6}{8}$ ,  $\frac{24}{10}$   
D. 2.3,  $\frac{24}{10}$ ,  $2\frac{6}{8}$

5. Study the addition problem below.

$$\frac{3}{4} + \frac{5}{2} = ?$$

Which statement is true about the sum?

- A. It will be greater than 3 and less than 4.
- B. It will be greater than 0 and less than 1.
- C. It will be less than or equal to 3.
- D. It will be greater than or equal to 4.

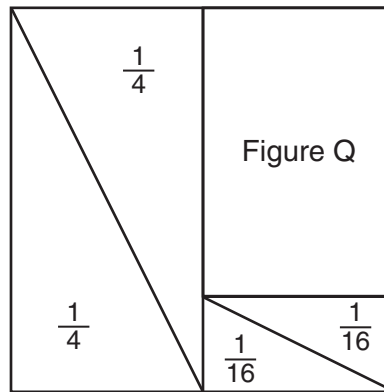
6. Compute:

$$0.23 \times 0.04$$

7. What is the value of  $x$  in the equation below?

$$3x = 24$$

8. Ms. Garner divided a square into two large triangles, two small triangles, and one rectangle, as shown below. The area of each large triangle is  $\frac{1}{4}$  the area of the entire square. The area of each small triangle is  $\frac{1}{16}$  the area of the entire square.



- a. The sum of the fractions for all of the shapes is 1. What fraction of the area of the square is Figure Q? Show your work or explain how you found your answer.
- b. The area of the square is 32 square inches. What is the area, in square inches, of Figure Q? Show your work or explain how you found your answer.

## Mathematics (Calculator)

9. Glenda drew a design that looks the same when it is rotated (turned)  $90^\circ$  clockwise. Which design could she have drawn?



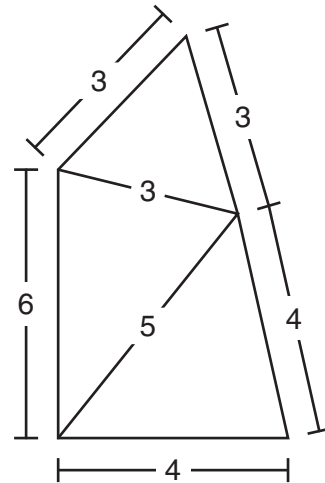
10. Michael rode his bike for 12.5 miles. He rode at a rate of 5 miles per hour. How many hours did Michael ride his bike?
- A. 2.5 hours  
 B. 7.5 hours  
 C. 17.5 hours  
 D. 62.5 hours

11. The students in a science class recorded the percentages of calcium found in different apple leaves. Their data are below.

2.4 1.4 1.5 1.7 1.4 2.3 1.1 1.4 2.1

Based on the data, what is the mean (average) percentage of calcium found in apple leaves?





- A. 1.3  
 B. 1.4  
 C. 1.5  
 D. 1.7
12. Emma made the shape shown below using three triangles.

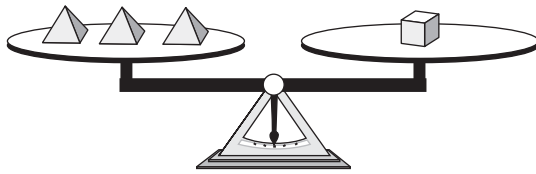


How many **scalene** triangles did Emma use?

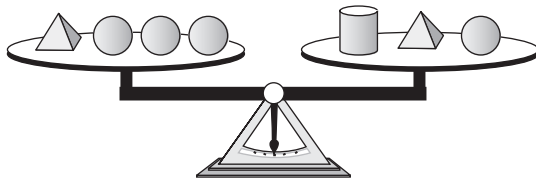
- A. 0  
 B. 1  
 C. 2  
 D. 3

13. The three scales shown below are balanced.

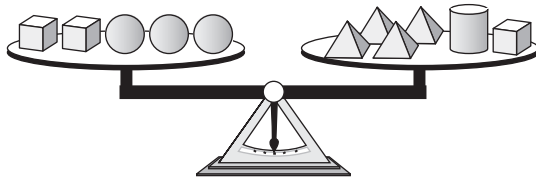
- Each  weighs the same.
- Each  weighs the same.
- Each  weighs the same.
- Each  weighs the same.



Scale 1













Scale 2

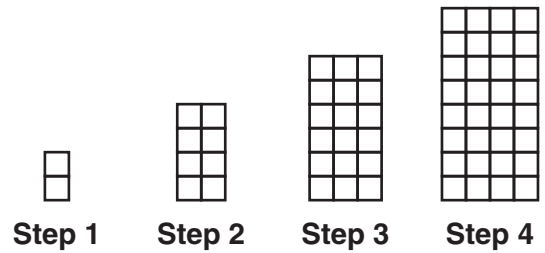


Scale 3

Which equation is true?

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

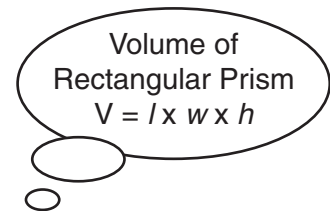
14. Dillon made the pattern below using tiles.



Based on the pattern, how many tiles will be in Step 6 of the pattern?

- A. 44  
B. 50  
C. 60  
D. 72

15. Carla is making a sandbox in the shape of a rectangular prism. The sandbox has a length of 40 inches, a width of 60 inches, and a height of 6 inches.

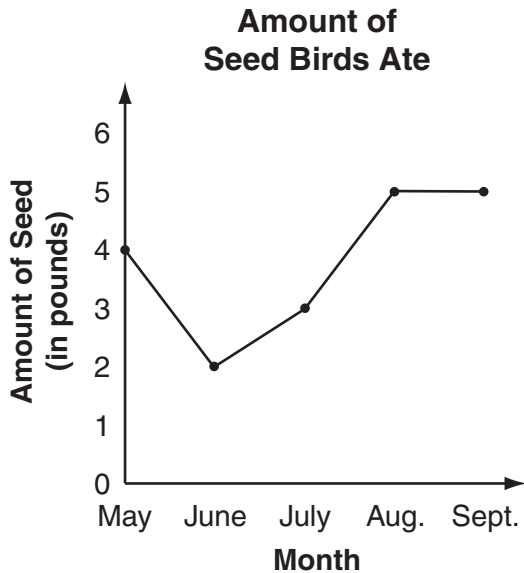


How much sand is needed to fill the sandbox?

- A. 14,400 cubic inches  
B. 14,400 square inches  
C. 6,000 cubic inches  
D. 6,000 square inches

16. In the Kootenai National Forest, a quaking aspen tree has a circumference of 94.2 inches. What is the diameter of the tree? (Use 3.14 for  $\pi$ .)
- A. 15 inches
  - B. 25 inches
  - C. 30 inches
  - D. 60 inches

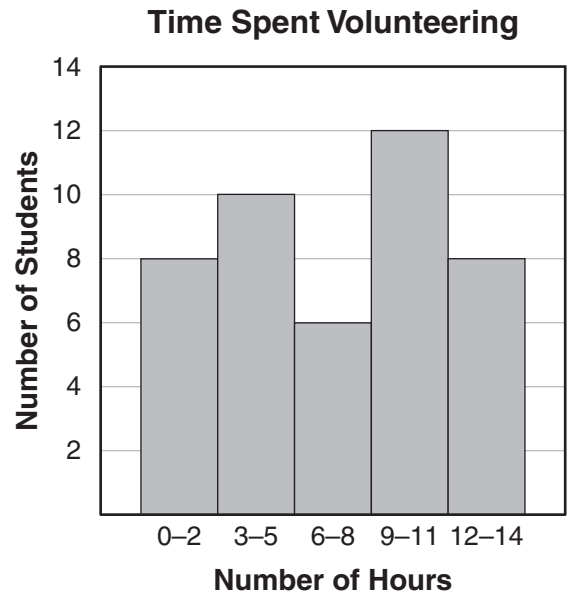
17. Kristen made a bird feeder. The graph below shows the number of pounds of seeds the birds ate for five months.



Between which two months did the number of pounds of seeds the birds ate increase the **most**?

- A. May and June
- B. June and July
- C. July and August
- D. August and September

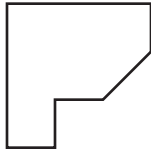
18. Justin used the histogram below to show the number of hours his classmates volunteered for a school cleanup project.



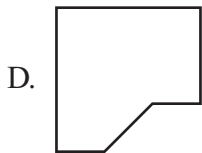
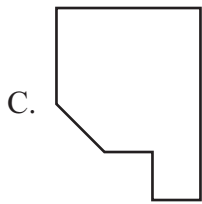
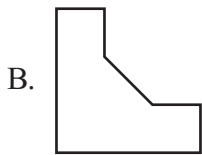
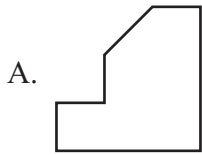
Which statement is **true** about the information in the histogram?

- A. There were exactly 18 students who volunteered 5 or fewer hours.
- B. There were exactly 12 students who volunteered 9 or more hours.
- C. There were exactly 24 students who volunteered 6 or fewer hours.
- D. There were exactly 26 students who volunteered 8 or more hours.

19. Steven drew the shape shown below.



Which shape is congruent with Steven's shape?



20. Margaret wants to attend a book sale. The admission fee is \$5 and each book costs \$2. Which expression can be used to find the total amount of money Margaret can spend at the book sale if she buys  $b$  books?

- A.  $5 + 2b$
- B.  $10b$
- C.  $5b + 2$
- D.  $(5 + 2)b$

21. Sam made a model of a submarine using the scale below.

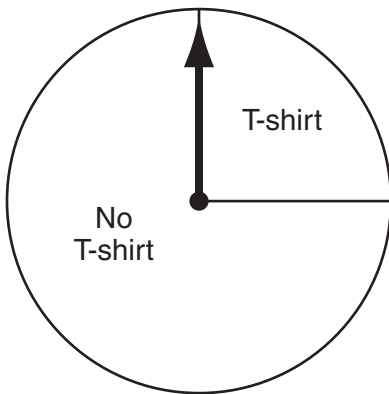
$$2 \text{ inches} = 10 \text{ feet}$$

Sam's model is 8 inches long. What is the length of the actual submarine?

- A. 16 feet
- B. 18 feet
- C. 40 feet
- D. 80 feet



22. The students at Lincoln School sold 900 tickets to the school carnival. Each person that bought a ticket will spin the arrow on the spinner shown below for a chance to win a T-shirt.



Based on this information, which is the **best** prediction for the number of people who will win a T-shirt?

- A. 225
- B. 300
- C. 450
- D. 675

23. Which expression is the prime factorization of 300?
- A.  $2 \times 150$
  - B.  $2 \times 2 \times 75$
  - C.  $2 \times 2 \times 5 \times 15$
  - D.  $2 \times 2 \times 5 \times 5 \times 3$

24. Helen is decorating her living room. She wants to paint the room yellow and blue and then add a border around the ceiling. She may choose from the list below.

- 3 shades of yellow paint
- 2 shades of blue paint
- 4 borders

How many different ways can Helen decorate the room using 1 shade of yellow paint, 1 shade of blue paint, and 1 border?

- A. 6
- B. 9
- C. 12
- D. 24

25. Jamie borrowed \$250 from his parents. The table below shows the amount of money he still owes his parents after he makes 3 payments.

**Jamie's Payment Plan**

<b>Number of Payments</b>	<b>Amount Jamie Owes (in \$)</b>
0	250
1	235
2	220
3	205

Jamie continues to make payments of the same amount. After how many payments will he owe his parents exactly \$100?

- A. 15
- B. 11
- C. 10
- D. 7

26. Which figure is **not** always a parallelogram?

- A. trapezoid
- B. rhombus
- C. rectangle
- D. square

27. Clare is designing a table in the shape of a hexagon with three sides that are 18 inches long and three sides that are  $l$  inches long. The expression below represents the perimeter of the table.

$$(3 \times l) + (3 \times 18)$$

What is the perimeter, in inches, of the table when  $l$  equals 24?

- A. 57
- B. 72
- C. 126
- D. 162

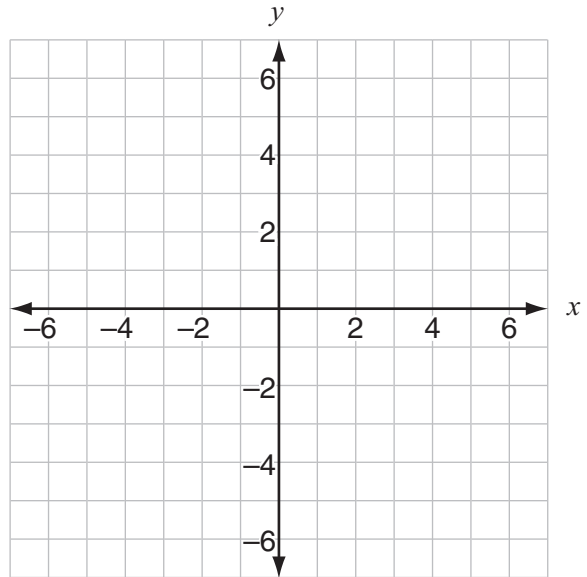
28. Vernon sells his handmade picnic tables for \$40 more than the cost of the lumber needed to make each one.

$L$ = cost of lumber $C$ = selling price for each table
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Which equation can be used to find the selling price for each table?

- A.  $C = L - 40$
- B.  $C \times 40 = L$
- C.  $C + 40 = L$
- D.  $C = 40 + L$

29. You may use the coordinate grid below to help you answer this question.



Ethan plotted the vertices of rectangle  $WXYZ$  on a coordinate grid.

- The coordinates of vertex  $W$  are  $(-2, 4)$ .
- The coordinates of vertex  $X$  are  $(4, 4)$ .
- The coordinates of vertex  $Y$  are  $(4, 1)$ .

Which coordinates could be the location of vertex  $Z$  on this rectangle?

- A.  $(2, -1)$
- B.  $(-2, 1)$
- C.  $(-1, 2)$
- D.  $(1, -2)$

30. Use your protractor and the diagram below to answer this question.



What is the measure of angle  $S$  to the nearest degree?

- A.  $76^\circ$
- B.  $84^\circ$
- C.  $104^\circ$
- D.  $116^\circ$