Montana Comprehensive Assessment System *(MontCAS CRT)*

GRADE 7
COMMON RELEASED ITEMS

SPRING 2009
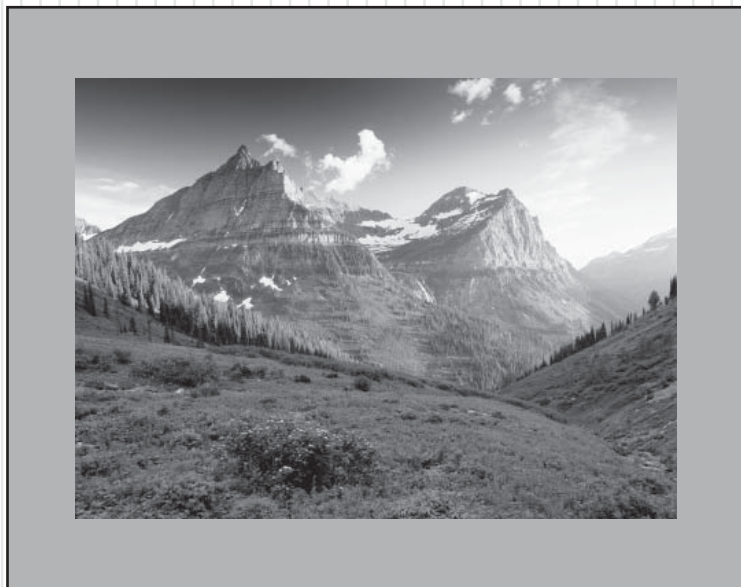
OPI

OFFICE OF PUBLIC INSTRUCTION

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.

12. The ratio of oil paintings to watercolors in an art show is 4 to 3. There are 24 watercolors in the art show. How many oil paintings are in the art show?

   A. 18

   B. 32

   C. 72

   D. 96

13. A rock climber starts at an elevation of 4425 feet. After 2.5 hours, his elevation is 3300 feet. What is the average change in elevation, in feet per hour, of the rock climber?

   A. −1770 feet per hour

   B. −1320 feet per hour

   C. −450 feet per hour

   D.   −45 feet per hour

14. Study the numbers below.

$$\sqrt{16},\ \frac{13}{4},\ 4.2$$

   Which list shows these numbers in order from **least** to **greatest**?

   A. $\sqrt{16}$, 4.2, $\frac{13}{4}$

   B. $\frac{13}{4}$, 4.2, $\sqrt{16}$

   C. 4.2, $\frac{13}{4}$, $\sqrt{16}$

   D. $\frac{13}{4}$, $\sqrt{16}$, 4.2

15. The expression below can be used to calculate Danny's total cost if he buys 2 pounds of macaroni salad and 3 pounds of coleslaw at a store. The price of each salad is $2.29 per pound.

$$2(2.29) + 3(2.29)$$

   What is another way to calculate Danny's total cost?

   A. 5 + 2.29

   B. 2.29(2 + 3)

   C. 5(2.29 + 2.29)

   D. (2 + 2.29)(3 + 2.29)

Please go on to the next page.

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

18. Compute:

$$4\frac{1}{3} + 7\frac{5}{6}$$
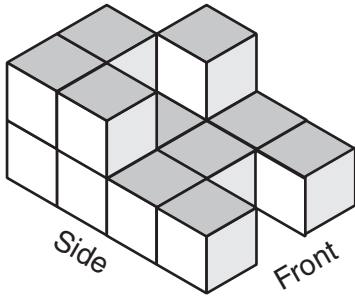
19. Compute:

$$6 - 2 \times 3 + 10 \div 2$$

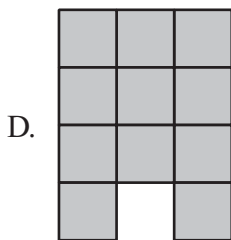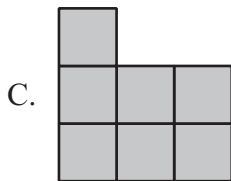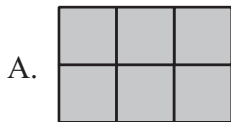# Mathematics
Session 2 (Calculator)

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

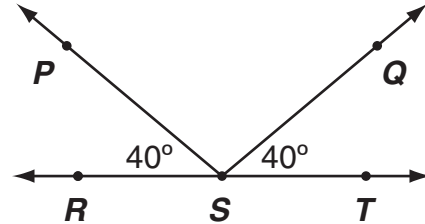**Mark your answers in the section marked "Mathematics—Session 2 (Calculator)" in your Student Response Booklet.**

24. Study the stack of blocks shown below.

Which diagram could be the **top** view of this stack of blocks?

A.

B.

C.

D.

27. Study the figure below.

In the figure, $\overleftrightarrow{RT}$ is a straight line. What is the measure of angle PSQ?
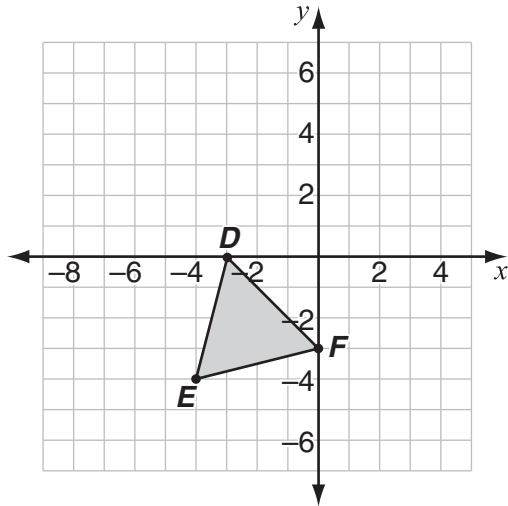
A. 50°
B. 100°
C. 140°
D. 180°

28. Todd earns $7.50 per hour at a summer camp. Which equation can be used to determine his total earnings, e, for working h hours?

A. $e = h \div 7.50$
B. $e = 7.50 + h$
C. $e = 7.50 \div h$
D. $e = 7.50 \times h$

30. Triangle *DEF* is shown on the coordinate plane below.

Triangle *DEF* is translated 4 units to the right and 3 units down. What are the coordinates of the image of point *D* after this translation?

A. (–7, –3)

B. (0, –4)

C. (1, –3)

D. (–3, 1)

36. The probability of picking a red marble from a bag of marbles is $\frac{3}{5}$. If Tina picks a marble out of the bag 20 times and puts that marble back in the bag each time, how many times can she expect to pick out a **red** marble?

A. 3

B. 8

C. 12

D. 15

37. The equation below can be used to find the cost, *c*, of renting a rowboat for *h* hours.

$$c = 6 + 3h$$

Kelly has $18. What is the greatest number of hours she can rent a rowboat?

A. 2

B. 4

C. 8

D. 9

38. The table below shows the value of several terms in a pattern.

Term	Value
1	7
2	9
3	11
n	?

Which expression can be used to find the value of Term n in this pattern?

A. $n \times 7$

B. $n + 6$

C. $n \times 2 + 5$

D. $n \times 5 - 4$

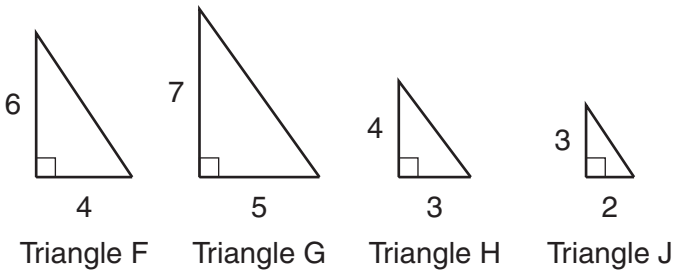40. The diagram below of a grizzly bear and a pine tree is drawn to scale.

The average height of a grizzly bear, when standing upright, is between 6 and 7 feet. Which is the **best** estimate for the height of the pine tree?

A. 20 feet

B. 30 feet

C. 40 feet

D. 50 feet

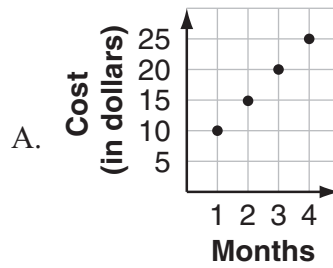41. Study the triangles below.

Triangle F   Triangle G   Triangle H   Triangle J

Which two triangles are similar?

A. F and G

B. H and J

C. F and J

D. F and H

42. A DVD rental club charges an initial start-up fee of $5 plus a monthly fee of $15 to rent 3 DVDs per month. Which graph represents the cost of belonging to this club and renting 3 DVDs each month?
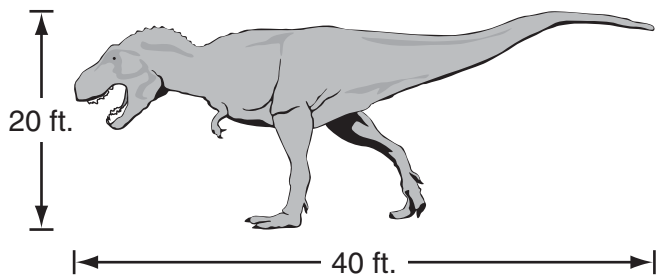
A.

B.

C.

D.

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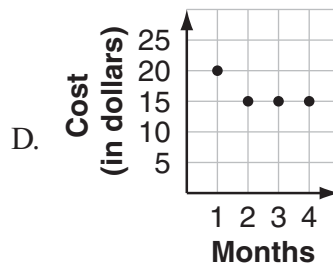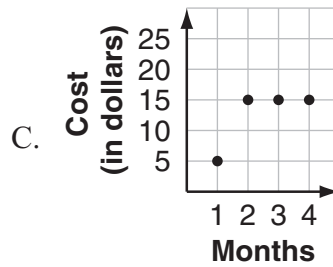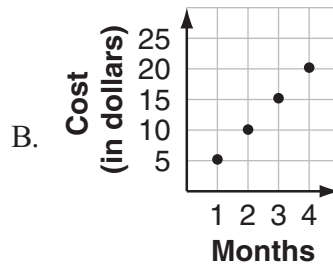
43. Study the equation below.

$$25 = 2x + 3$$

Which equation has the same solution?

A. $28 = 2x$

B. $22 = 2x$

C. $50 = x + 3$

D. $\dfrac{25}{2} = x + 3$

44. Sue, Jess, Liz, and Rachel are lining up side by side for a picture. How many different ways can they line up?

A. 4

B. 8

C. 12

D. 24

45. The actual size of a *T. rex* was about 40 feet in length by 20 feet in height, as shown below.

Cheryl used a scale of 1 inch = 2.5 feet to make a scale drawing of a *T. rex*. Which is the **best** estimate for the length, in inches, of the *T. rex* in Cheryl's drawing?

A.　16 inches

B.　20 inches

C.　80.5 inches

D.　100.5 inches

47. You may use the coordinate grid below to help you answer this question.
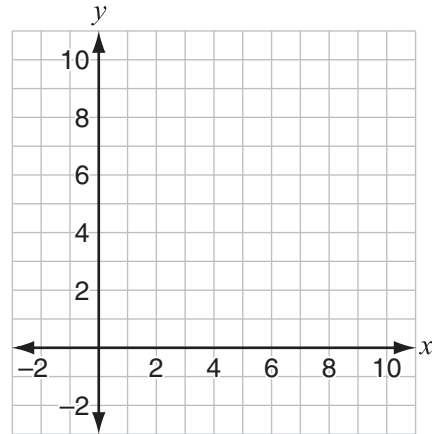
A triangle has vertices with the coordinates (2, 2), (4, 4), and (0, 2). Which word **best** describes this triangle?

A. equilateral

B. acute

C. right

D. scalene

Please STOP. Do not go on to the next page. STOP

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

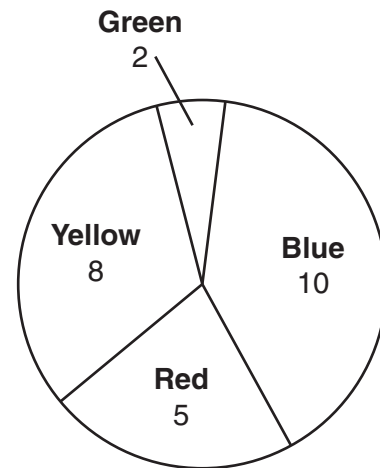50. Mr. Walker made the stem-and-leaf plot below to show the test scores in his science class.

Test Scores

5	0
6	1 1 2
7	0 1 2 5 6 7
8	0 2 4 4 5 5 5
9	0 2 9 9

Key: 8 │ 2 = 82

What is the **range** of these test scores?

A. 49
B. 78
C. 80
D. 85

57. The circle graph below shows the number of marbles of each color in a jar.
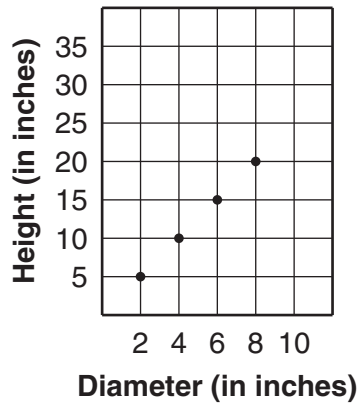

To the nearest degree, how many degrees should be in the sector representing **Yellow**?

A.   8
B.   32
C. 115
D. 172

59. Jeff tested balloon rockets to see if the diameter of the balloon had an effect on the height the balloon rocket reached after liftoff. The results are shown in the graph below.

Diameter (in inches)

Based on the graph, which height would a balloon rocket made with a balloon with a 12-inch diameter **most likely** reach?

A. 20 inches

B. 25 inches
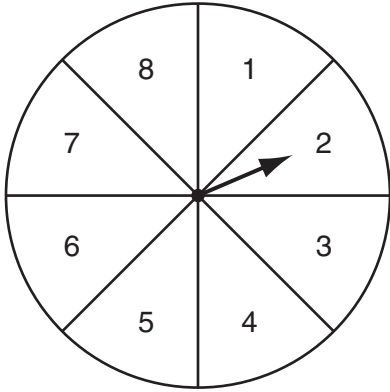
C. 30 inches

D. 35 inches

60. Study the box below.
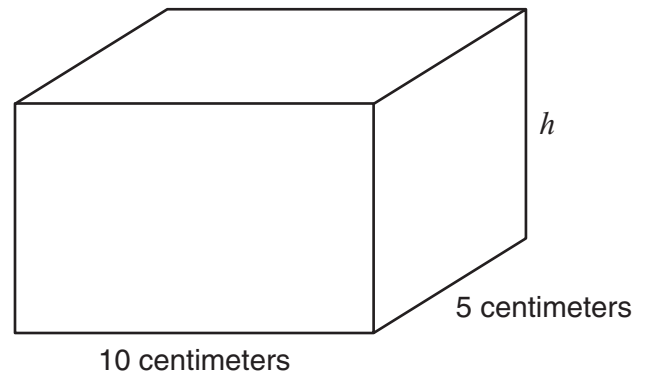
The volume of this box is 300 cubic centimeters. What is the height, h, of the box?

A.   5 centimeters

B.   6 centimeters

C. 20 centimeters

D. 250 centimeters

62. Lauren is using the spinner shown below to play a game.

What is the probability that Lauren will get a 6 on her next spin?

A. $\frac{1}{8}$

B. $\frac{1}{6}$

C. $\frac{6}{8}$

D. $\frac{7}{8}$

66. During a blizzard, it snowed for 4 hours, stopped for 2 hours, then snowed for 6 more hours. There was no snow on the ground before the blizzard started, and no snow melted during the blizzard. Which graph **best** represents the amount of snow on the ground during the blizzard?

A.

B.

C.

D.

20
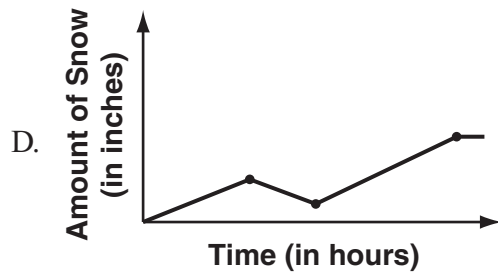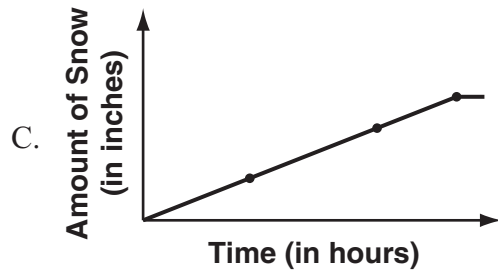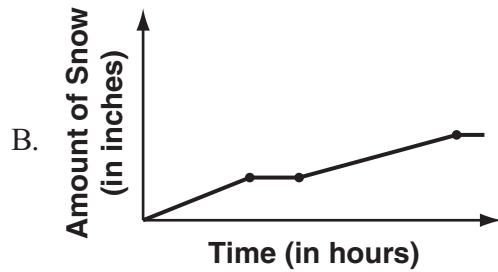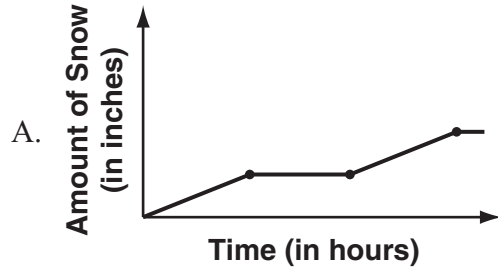
68. A holding tank on a farm can store 3,000 gallons of milk. How many **pints** of milk does this equal?
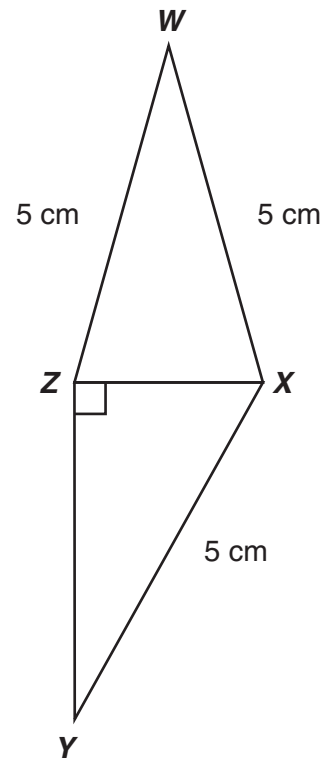
A.　　375
B.　6,000
C.　12,000
D.　24,000

71. Randy is taking horse riding lessons. The chart below shows the cost of taking lessons at one riding school.

Number of Hours	Cost
1	$25
2	$40
3	$55
4	$70

If the cost of taking riding lessons continues at this rate, what is the cost of taking 8 hours of lessons at this riding school?

A. $ 75
B. $ 85
C. $130
D. $200

72. Triangle *WXZ* and triangle *XYZ* are shown below.

Which words **best** describe triangle *WXZ*?

A. acute equilateral
B. obtuse equilateral
C. acute isosceles
D. obtuse isosceles

Please go on to the next page.

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

73. A research company conducted a food allergy study.

   a. In the study, 15 out of 1,500 men were allergic to wheat. What percent of the men were allergic to wheat? Show or explain how you know.

   b. In the same study, 5 out of 2,000 women were also allergic to wheat. The population of a city includes approximately 198,000 men and 214,000 women. Based on the research company's data, how many men and women in this city can be expected to be allergic to wheat? Show or explain how you know.