

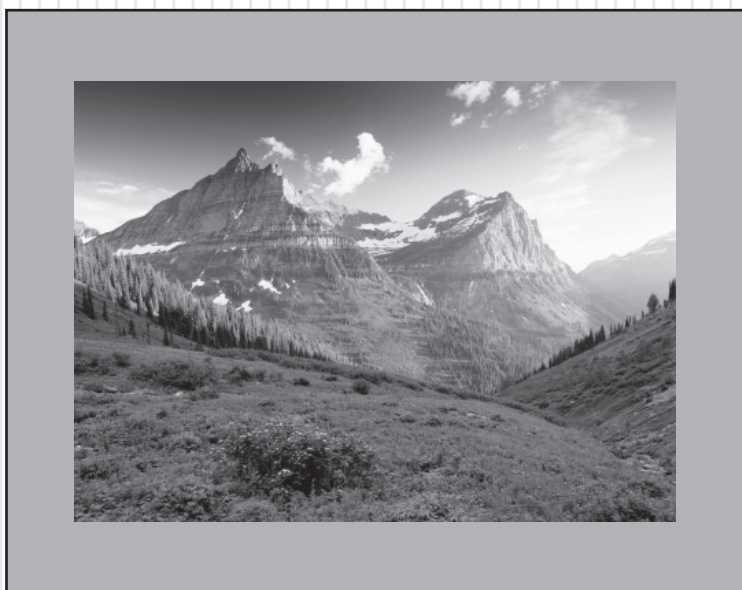
Montana *Comprehensive Assessment* *System* (MontCAS, Phase 2 CRT)

Student Name:

School Name:

Teacher/Class:

GRADE 8
COMMON RELEASED ITEMS
SPRING 2007



OPI

OFFICE OF PUBLIC INSTRUCTION



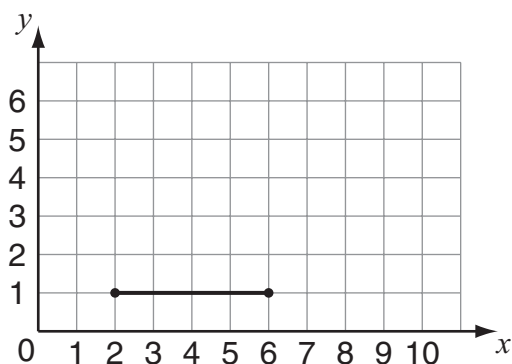
Mathematics

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 14 in the section marked "Mathematics—Session 1 (Calculator)" in your Student Response Booklet.

1. The **base** of an isosceles triangle is shown on the coordinate plane below.



Which ordered pair could be the coordinates of the third vertex of the isosceles triangle?

- A. (2, 4)
- B. (4, 5)
- C. (6, 4)
- D. (10, 5)

Use the equation below to answer question 2.

$$2m + 52 = 180$$

2. Which equation shows a correct first step to solve for m ?

A. $2m + 52 - 52 = 180 + 52$

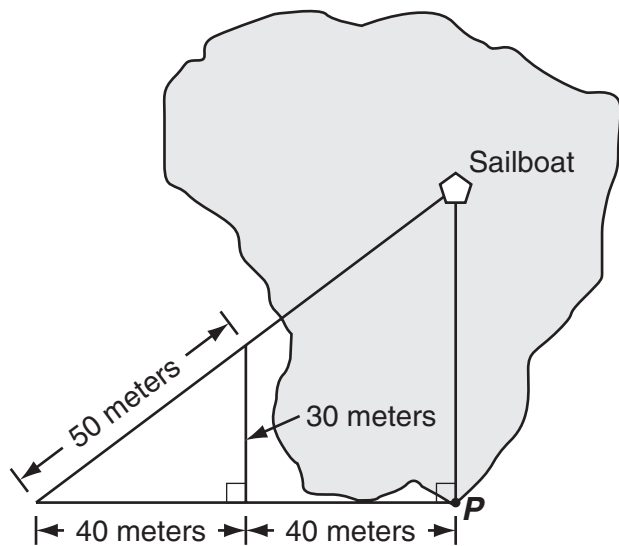
B. $\frac{2m}{2} + 52 = \frac{180}{2}$

C. $(2 + 52)m = 180$

D. $2m + 52 - 52 = 180 - 52$



3. A sailboat is located in the middle of a lake. Elaine drew the sketch shown below to determine the distance between the sailboat and point P on the shoreline.



What is the distance between the sailboat and point P ?

- A. 50 meters
- B. 60 meters
- C. 70 meters
- D. 100 meters

4. A survey found that 2 out of 5 people like fish sticks. If 350 people like fish sticks, how many people were surveyed?
- A. 140
 - B. 175
 - C. 700
 - D. 875



5. Which table shows a linear relationship between x and y ?

A.

x	y
1	50
2	40
3	30
4	15
5	0

B.

x	y
1	40
2	30
3	20
4	10
5	0

C.

x	y
1	50
2	25
3	10
4	5
5	0

D.

x	y
1	40
2	20
3	10
4	5
5	0

6. Martin bought 12 cubic yards of dirt. He plans to spread the dirt to an average depth of 2 feet. How many square **feet** of area will the dirt cover? [Hint: 1 cu. yd. = 27 cu. ft.]

- A. 6 square feet
- B. 18 square feet
- C. 54 square feet
- D. 162 square feet

7. The formula below can be used to find the amount of interest, i , earned when p dollars are invested at an annual interest rate of r for t years.

$$i = prt$$

How much interest will be earned if \$300 is invested at a rate of 2% for 4 years?

- A. \$ 6.00
- B. \$ 8.00
- C. \$18.00
- D. \$24.00

8. Each math team consists of one girl and one boy. Three girls and three boys want to be on math teams. How many different math teams can be made using one boy and one girl?

- A. 3
- B. 6
- C. 9
- D. 20



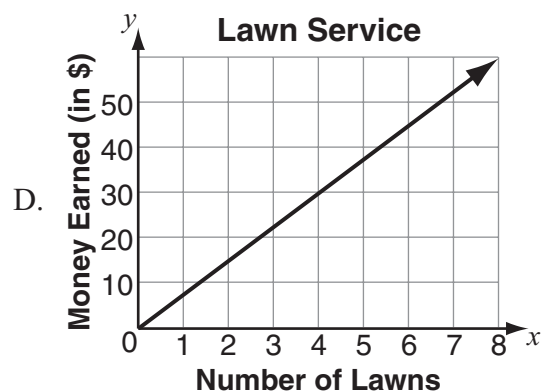
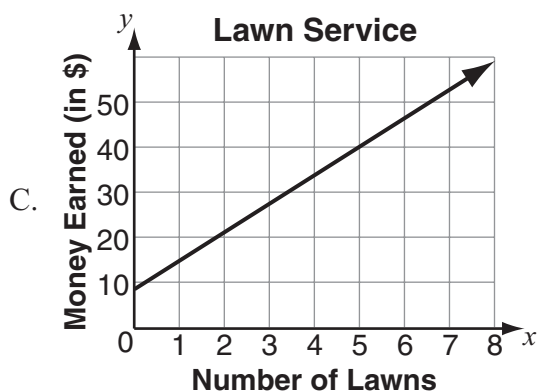
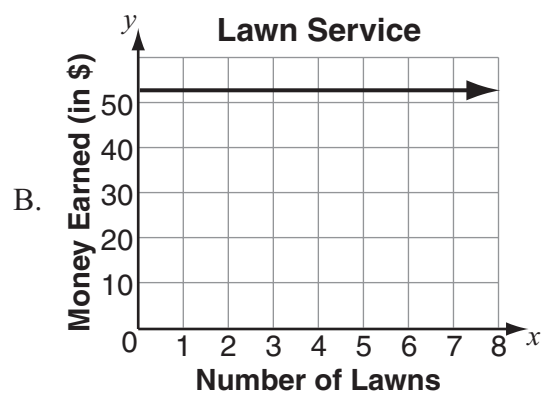
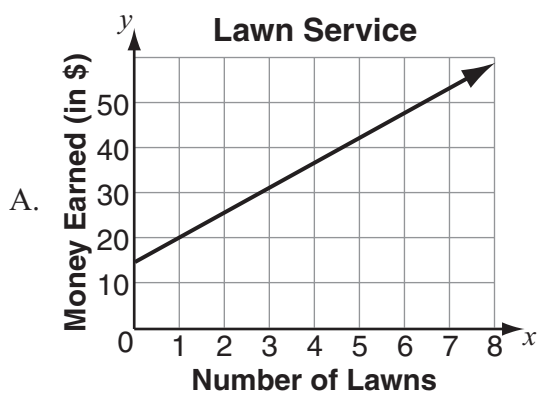
9. Triangle EFG is a right triangle with legs measuring 4 and 8. Which pair of measures could be the lengths of the legs of a right triangle that is similar to $\triangle EFG$?
- A. 3 and 7
 - B. 6 and 10
 - C. 8 and 12
 - D. 12 and 24
10. Christopher rode his bike 2.4 miles in 12 minutes. What was his average speed in miles per hour?
- A. 5 miles per hour
 - B. 12 miles per hour
 - C. 25 miles per hour
 - D. 48 miles per hour



11. The table below shows the amount of money Jason earns mowing lawns.

Jason's Lawn Service	
Number of Lawns	Money Earned
2	\$15.00
5	\$37.50
7	\$52.50

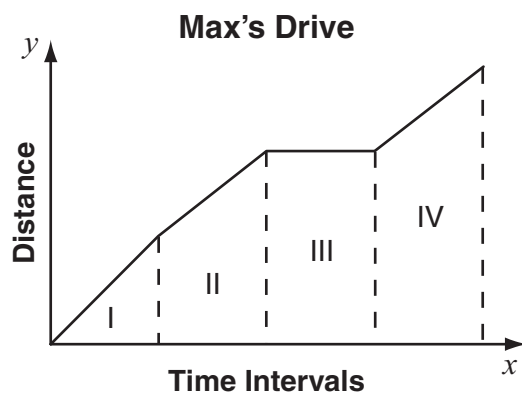
Based on the pattern in the table, which graph **best** represents the amount of money, y , Jason earns for mowing x lawns?



12. Harold drinks 2500 milliliters of water each day. How many liters of water does he drink each day?

A. 0.25 liters
B. 2.5 liters
C. 25 liters
D. 250 liters

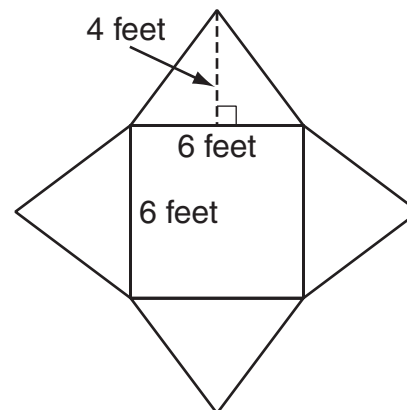
13. This graph shows the relationship between the time, x , and the total distance, y , that Max traveled.



Which statement **best** describes what Max was most likely doing during Interval III?

A. driving uphill
B. coasting downhill
C. traveling on a flat road
D. stopping for a rest

14. Anthony is using the pattern shown below to make a model of a square pyramid.



What will be the **surface area** of the pyramid he makes with this pattern?

A. 48 square feet
B. 84 square feet
C. 132 square feet
D. 144 square feet



Write your answer to question 15 in the space provided for it in your Student Response Booklet.

15. The frequency table below shows the number of ounces of water each member of a health class reportedly consumes on a normal day.

Daily Water Consumption

Number of Ounces of Water	Frequency
8	2
16	4
24	3
32	3
40	2
48	1
56	1

- How many members are in the health class? Show or explain how you found your answer.
- What is the median number of ounces of water consumed by members of the health class? Show or explain how you found your answer.
- What is the mean number of ounces of water consumed by members of the health class? Show or explain how you found your answer.

Mathematics

Session 2A (Calculator)

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

Mark your answer to question 16 in the section marked "Mathematics—Session 2A (Calculator)" in your Student Response Booklet.

16. A builder charges a base fee plus an hourly rate for the time spent at each job. The table below shows the builder's total charges for jobs of different lengths.

Time on the Job (hours)	Total Charge
1	\$55
2	\$80
3	\$105
4	\$130

Let c represent the total charge for a job and h represent the number of hours it takes the builder to complete the job. Which equation represents the relationship between the total charge and the number of hours required to complete the job?

- A. $c = 30 + 25h$
- B. $c = 40 + 20h$
- C. $c = 55h$
- D. $c = 40h$

Mathematics

Session 2B (No Calculator)

This test session includes multiple-choice questions. You may NOT use a calculator during this session.

Mark your answers to questions 17 through 19 in the section marked “Mathematics—Session 2B (No Calculator)” in your Student Response Booklet.

17. Greg has \$150 to spend on a car rental for his weeklong vacation. The car rental company charges \$95 a week plus \$0.18 per mile. Let m stand for the number of miles Greg will drive. Which equation should he use to find how many miles he can drive during his vacation without spending more than \$150?
- A. $95m + 0.18 = 150$
 - B. $150m + 0.18 = 95$
 - C. $95 + 150 = 0.18m$
 - D. $0.18m + 95 = 150$
18. Which expression has the greatest value?
- A. $-24 - (-8) + 12$
 - B. $-24 - 8 + 12$
 - C. $-24 - 8 - 12$
 - D. $-24 - (-8) - 12$
19. Ms. Sloby is treating the math club to a cookout. She bought hot dogs in packages of 12 and buns in packages of 8. If each student has 1 hot dog and 1 bun and there are no leftover buns or hot dogs, what is the smallest possible number of students in the math club?
- A. 96 students
 - B. 48 students
 - C. 24 students
 - D. 12 students

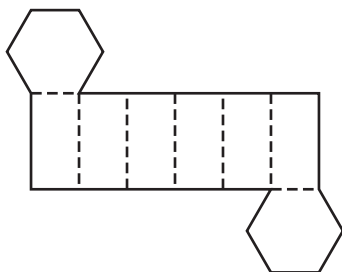
Mathematics

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 20 through 28 in the section marked "Mathematics—Session 3 (No Calculator)" in your Student Response Booklet.

20. Polly is folding the pattern shown below along the dotted lines to make a box.



What type of box is Polly making?

- A. hexagonal prism
 - B. hexagonal pyramid
 - C. octagonal prism
 - D. octagonal pyramid
21. Jerry is buying four books at the prices listed below.

\$1.95, \$2.95, \$4.95, \$1.95

Which expression could Jerry use to find the total cost of the books?

- A. $(2 + 3 + 5 + 2) + 4(0.05)$
- B. $(2 + 3 + 5 + 2) - 4(0.05)$
- C. $(1 + 2 + 4 + 1) + 4(0.05)$
- D. $(1 + 2 + 4 + 1) - 4(0.05)$

22. Mr. Lee purchased the items listed in the table below.

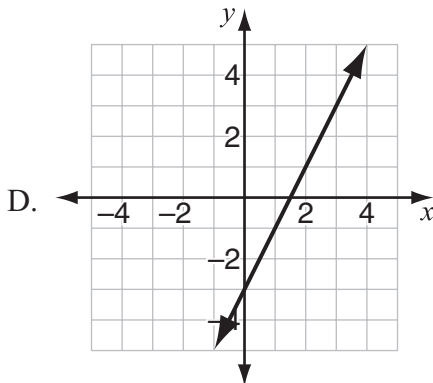
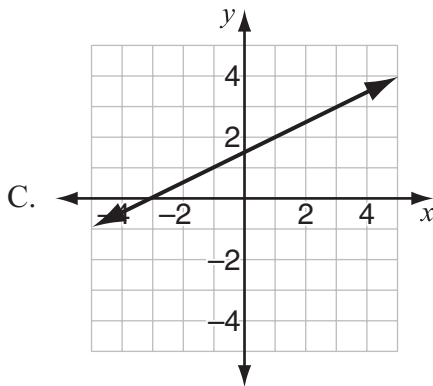
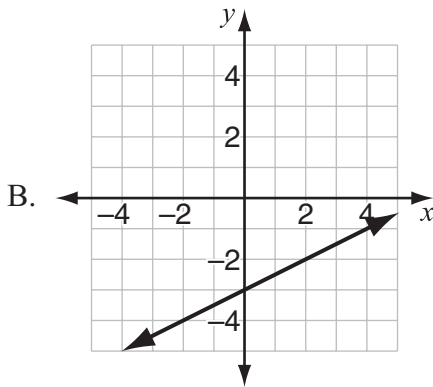
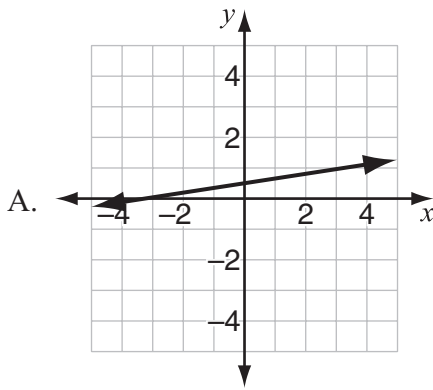
Shirt	\$14.89
Jeans	\$29.29
Belt	\$ 5.09
Socks	\$ 5.99

About how much change should Mr. Lee receive if he pays with a \$100 bill?

- A. \$40
 - B. \$45
 - C. \$50
 - D. \$55
23. Which group of numbers is arranged in order from **least** to **greatest**?
- A. $-10, 0, \sqrt{25}$
 - B. $0, -10, \sqrt{25}$
 - C. $-10, \sqrt{25}, 0$
 - D. $\sqrt{25}, -10, 0$



24. Which graph represents $y = \frac{1}{2}x - 3$?



25. The distance to the center of Earth from a point on the equator is about 6380 kilometers. Which mathematical term **best** represents this distance?

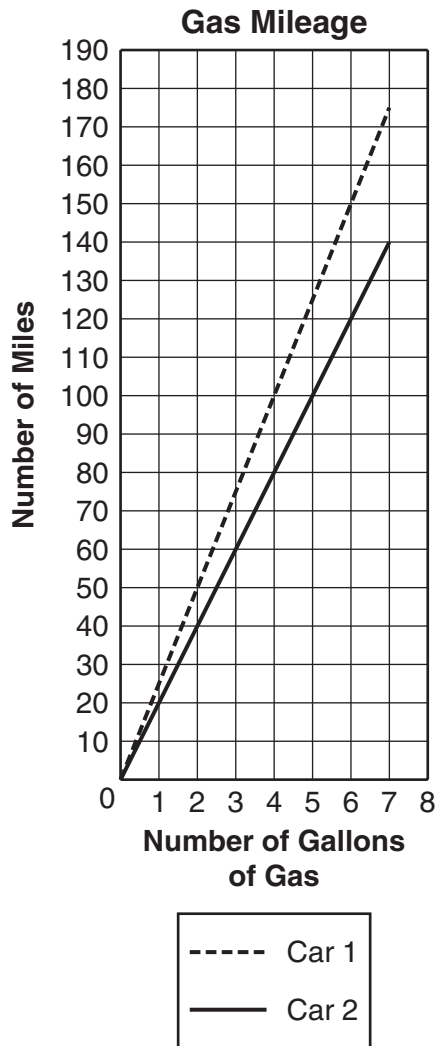
- A. area
- B. circumference
- C. diameter
- D. radius

26. Bookends Bookstore wants to survey its customers to determine the most popular book. Which sample would **best** represent the company's customers?

- A. the first 100 customers on a Saturday morning
- B. the first 100 customers who volunteer
- C. every 10th customer during a two-week period
- D. every 10th customer who signs up for the newsletter



27. A magazine included this graph with an article about the gas mileage of two cars.



Based on the graph, how many more gallons of gas will Car 2 use to travel 100 miles than Car 1?

- A. 1
- B. 2
- C. 4
- D. 5

28. On Monday, a supermarket had $15\frac{1}{4}$ cases of apple juice for sale. On Friday, there were $8\frac{1}{2}$ cases left. How many cases of apple juice were sold at this supermarket between Monday and Friday?

- A. $6\frac{1}{4}$
- B. $6\frac{3}{4}$
- C. $7\frac{1}{4}$
- D. $7\frac{3}{4}$



Write your answers to questions 29 and 30 in the spaces provided in your Student Response Booklet. Show all of your work.

29. The formula below can be used to find the final price, p , including tax, of a television that costs c dollars.

$$p = c + 0.07c$$

What is the final price of a television that costs \$200?

30. Divide.

$$5.25 \div 0.5$$

