



**NEW ENGLAND  
COMMON ASSESSMENT PROGRAM**

**Released Items  
2007**

**Grade 8  
Mathematics**

# Mathematics



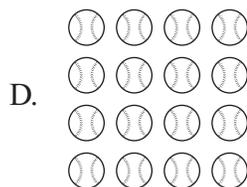
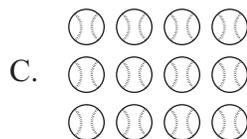
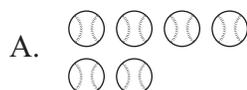
Item selected from Session One—no calculators or other mathematics tools allowed.

- 1 The diagram below represents the number of baseball games the Jays won last year.



**Games Won Last Year**

This year the Jays won 300% of the number of games they won last year. Which diagram represents the number of games the Jays won this year?



- 2 This chart shows the percent of students who are girls in each of Crystal's four classes.

Class	Total Number of Students (Girls and Boys)	Percent Who Are Girls
Science	18	50%
Math	20	50%
Reading	20	25%
Social Studies	30	30%

Which two classes have the same number of girls?

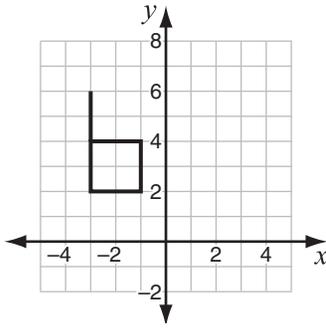
- A. science and math
- B. math and reading
- C. science and social studies
- D. math and social studies



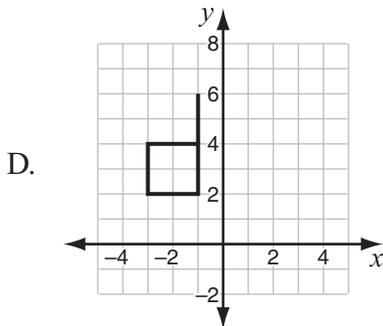
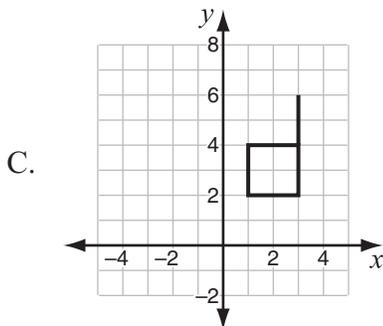
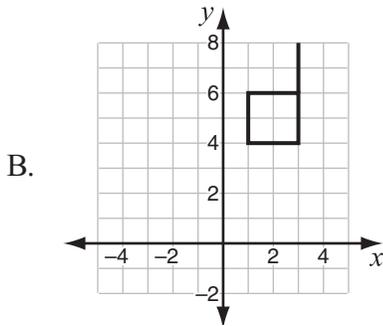
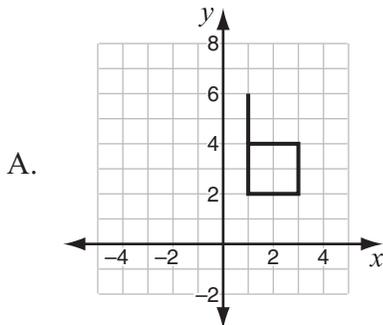
- 3 Jason buys sports equipment worth \$80.00 and pays 5% sales tax. What is the total amount Jason pays, including sales tax, for the sports equipment?

- A. \$88.00
- B. \$85.00
- C. \$84.00
- D. \$82.50

- 4 Look at this figure on the grid.



Which grid shows the image of the figure after it is reflected over the  $y$ -axis?



- 5 Students in Mrs. Munson's mathematics class measured the outside temperature each day for 4 days. They recorded their measurements in tables. Which table shows a **varying rate** of change in the temperature?

**Monday**

Time	Temperature ( $^{\circ}\text{F}$ )
9:00	45
9:15	47
9:30	49
9:45	51
10:00	53

**Tuesday**

Time	Temperature ( $^{\circ}\text{F}$ )
9:00	50
9:15	52
9:30	53
9:45	55
10:00	56

**Wednesday**

Time	Temperature ( $^{\circ}\text{F}$ )
9:00	60
9:15	60
9:30	60
9:45	60
10:00	60

**Thursday**

Time	Temperature ( $^{\circ}\text{F}$ )
9:00	60
9:15	59
9:30	58
9:45	57
10:00	56



6 What is the value of  $\frac{2}{3}x - \frac{1}{2}$  when  $x = 18$ ?

- A. 3
- B. 6
- C.  $11\frac{1}{2}$
- D.  $26\frac{1}{2}$

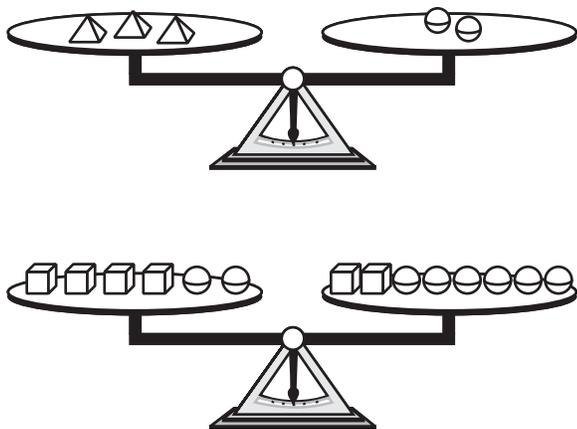
7 While bird watching, Mary saw two robins for every three cardinals. If  $n$  represents the number of robins, which expression represents the number of cardinals she saw?

- A.  $2n + 3$
- B.  $3(2n)$
- C.  $\frac{n}{2} + 3$
- D.  $\frac{3n}{2}$

8 Four people have dinner together at a restaurant. They pay equal portions of the cost, in dollars, of the dinner,  $d$ , and the \$10 tip. Which expression represents the amount of money each person pays?

- A.  $d \div 4 + 10$
- B.  $4 \div (d + 10)$
- C.  $d + 10 \div 4$
- D.  $(d + 10) \div 4$

- 9 These scales are balanced.



How many  $\triangle$  weigh the same as one  $\square$ ?

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

- 10 The table below shows how blood types are distributed in the American population.

Blood Type	Percent of Population
O	43%
A	40%
B	12%
AB	5%

Which type of graph **best** displays the data in the table?

- A. circle graph
- B. line graph
- C. histogram
- D. scatter plot



- 11 Write two numbers so that
- the first number is **less than** the second number, and
  - the absolute value of the first number is **greater than** the absolute value of the second number.

- 12 The sum of the measures of the interior angles of a regular polygon is  $540^\circ$ . How many sides does the polygon have?



- 13 Morgan and Ted each earn \$8 per hour. Today Ted started work  $\frac{1}{2}$  hour after Morgan. They stopped working at the same time.
- Write an algebraic expression that shows how much money Morgan earned for the number of hours,  $m$ , she worked.
  - Write an algebraic expression that shows how much money Ted made in terms of  $m$ , the number of hours Morgan worked.

- 14 The table below shows scores on a mathematics placement exam reported from five different schools.

**Mathematics Scores**

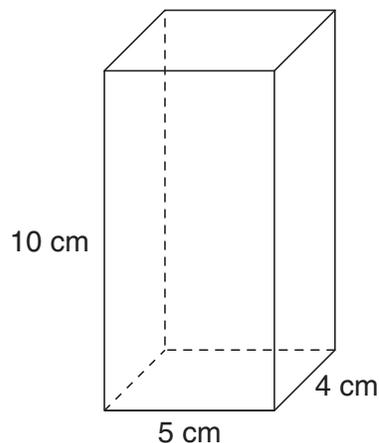
School	Score
Bayview Middle School	35.4
Mountain Top Middle School	30.9
Sunset Middle School	26.1
Evergreen Middle School	30.3
Gateway Middle School	31.3

Based on these data, the mean school score is 30.8. An error was found in the Sunset Middle School score. The correct score is:

Sunset Middle School	Correct score: 29.6
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What is the corrected mean school score? Show your work or explain how you know.

- 15 This diagram shows the dimensions of a container in the shape of a rectangular prism.



- a. What is the volume, in cubic centimeters, of the container? Show your work or explain how you know.
- b. A different container is also a rectangular prism and has the same volume as the container in part a. This container has a square base with side lengths of 5 cm. What is the height, in centimeters, of this container? Show your work or explain how you know.

## Grade 8 Mathematics Released Item Information

Released Item Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No Tools Allowed		✓	✓			✓					✓		✓		
Content Strand <sup>1</sup>	NO	NO	NO	GM	FA	FA	FA	FA	FA	DP	NO	GM	FA	DP	GM
GLE Code	7-1	7-1	7-4	7-4	7-2	7-3	7-3	7-4	7-4	7-3	7-2	7-2	7-3	7-2	7-6
Depth of Knowledge Code	1	2	1	1	2	1	3	2	2	2	3	2	2	3	2
Item Type <sup>2</sup>	MC	SA	SA	SA	SA	CR									
Answer Key	C	C	C	C	B	C	D	D	D	A					
Total Possible Points	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4

<sup>1</sup>Content Strand: NO = Numbers & Operations, GM = Geometry & Measurement, FA = Functions & Algebra, DP = Data, Statistics, & Probability

<sup>2</sup>Item Type: MC = Multiple Choice, SA = Short Answer, CR = Constructed Response