



**NEW ENGLAND  
COMMON ASSESSMENT PROGRAM**

**Released Items  
2012**

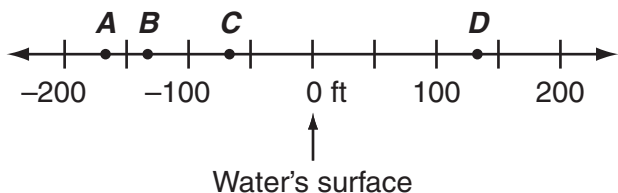
**Grade 7  
Mathematics**

# Mathematics



Items with this symbol were selected from Session One—no calculators or other mathematics tools allowed.

- 1 A ship's anchor is 135 feet below the water's surface. The position of the anchor is modeled on this number line.



Which point **best** represents 135 feet below the water's surface?

- A. point *A*
- B. point *B*
- C. point *C*
- D. point *D*



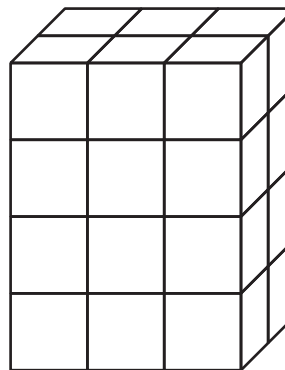
- 2 What must be true about a number  $y$  so that  $5 \cdot y < 5$ ?

- A.  $y > 5$
- B.  $y = 5$
- C.  $y = 1$
- D.  $y < 1$

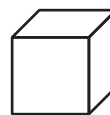
- 3 Which statement about a triangular prism is true?

- A. It has exactly 4 faces.
- B. It has exactly 5 faces.
- C. It has exactly 6 edges.
- D. It has exactly 8 edges.

- 4 Look at this rectangular prism.



**Key**



represents  $8 \text{ cm}^3$

What is the volume, in cubic centimeters, of the rectangular prism?

- A.  $192 \text{ cm}^3$
- B.  $128 \text{ cm}^3$
- C.  $96 \text{ cm}^3$
- D.  $48 \text{ cm}^3$

- 5 For a party, Nina will serve 12 ounces of cheese for every 5 people. How many **pounds** of cheese will she need for a party of 20 people? (1 pound = 16 ounces)
- A. 3.00 pounds
  - B. 3.75 pounds
  - C. 4.00 pounds
  - D. 6.70 pounds

- 6 A chorus is singing songs.
- 1 person sings the first song.
  - 3 people sing the second song.
  - 6 people sing the third song.
  - 10 people sing the fourth song.

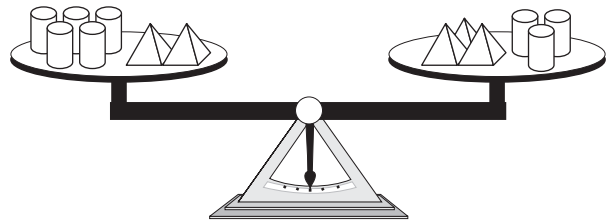
If the pattern continues, how many people will sing the seventh song?



- A. 22
- B. 25
- C. 28
- D. 31

- 7 The students in seventh grade are selling flowers to earn money for a class trip. A single carnation sells for \$2 and a single tulip sells for \$4. Which expression shows the amount of money the students will earn if they sell  $c$  carnations and  $t$  tulips?

- A.  $2 \cdot c \cdot 4 \cdot t$
- B.  $6 \cdot (c + t)$
- C.  $2 + c + 4 + t$
- D.  $2 \cdot c + 4 \cdot t$

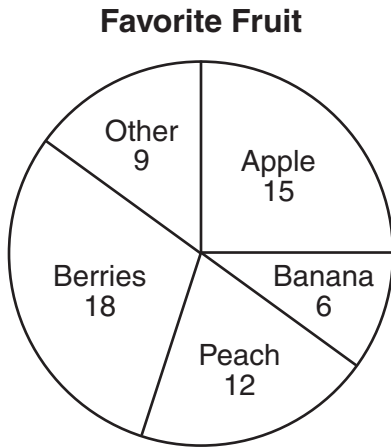
- 8 This scale is balanced.



Each  weighs  $c$  pounds. Each  weighs  $p$  pounds. Which statement shows the relationship between the objects on the scale?

- A.  $8c = 5p$
- B.  $7cp = 6cp$
- C.  $5c + 2p = 3c + p$
- D.  $5c + 2p = 3c + 3p$

- 9 Kerry surveyed a group of people about their favorite fruit. She made this circle graph to display her data.



What fraction of the people Kerry surveyed said their favorite fruit was a banana?

- A.  $\frac{1}{10}$
- B.  $\frac{1}{8}$
- C.  $\frac{1}{6}$
- D.  $\frac{1}{5}$

- 10 This list shows the number of books Alexis borrowed from the school library each of the last 5 weeks.

7, 2, 3, 1, 3

Alexis borrows 6 books this week. Which of the following will change if Alexis includes 6 in her list?

- A. mean
- B. median
- C. mode
- D. range

- 11 Look at these two equations.

$$F + F = G$$

$$G + H = F + F + F + F + F + F$$

The value of  $F$  is 3. What is the value of  $H$ ?

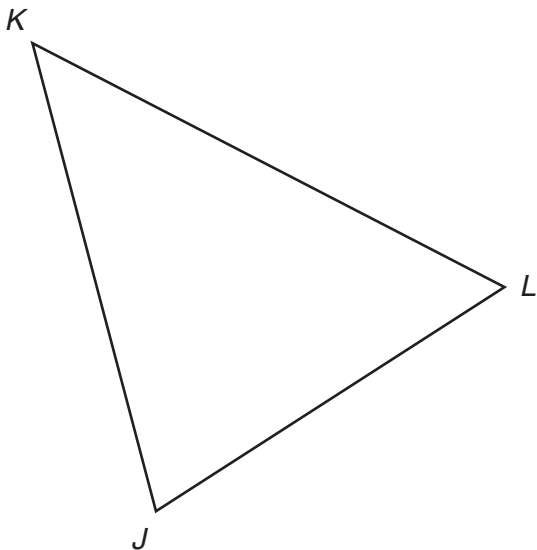


- 12 Thomas collected grocery coupons with the values listed below.

\$1.50	\$1.00	\$0.90
\$0.50	\$0.25	\$1.25
\$1.00	\$0.40	\$0.75

What is the median value of these grocery coupons?

- 13 Use your protractor to answer this question. What are the measures, in degrees, of each angle of this triangle? Be sure to list each measure with its correct angle label.



- 14 A copy store charges a one-time fee of \$25 to design a brochure. There is an additional cost to print copies of the brochure. This table shows the total cost of designing and printing different numbers of copies of the brochure.

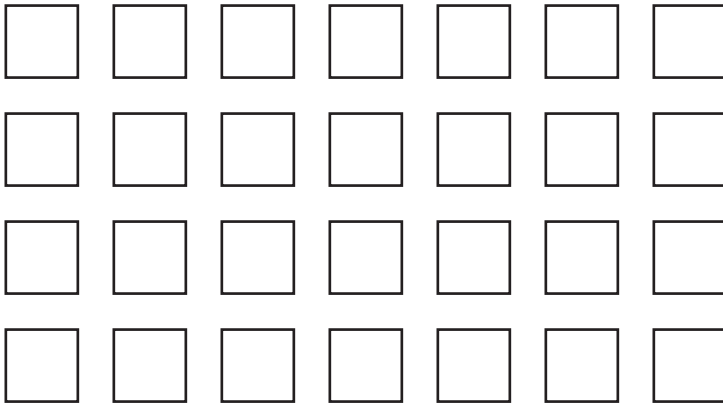
Number of Copies Printed	Total Cost
10	\$ 40
20	\$ 55
30	\$ 70
40	\$ 85
50	\$100

The pattern in the table continues.

- What is the total cost to print exactly 15 copies of the brochure?
- How many copies of the brochure can be printed for a total cost of \$160?



- 15 The ratio of boys to girls in a school chorus is 3:4. These squares represent the students in the chorus. Each square represents one student.



- How many squares should be shaded to represent the boys in the chorus?
- What is the ratio of the number of boys to the total number of students in the chorus?
- Some more boys join the chorus. No more girls join. This changes the ratio of the number of boys to the total number of students to 1:2. What is the total number of boys in the chorus now? Show your work or explain how you know.