



**NEW ENGLAND  
COMMON ASSESSMENT PROGRAM**

**Released Items  
2013**

**Grade 6  
Mathematics**

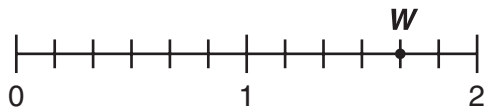
# Mathematics



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



- 1 Look at this number line.



Which number is shown by point  $W$ ?

- A.  $1\frac{2}{3}$
- B.  $1\frac{3}{4}$
- C.  $\frac{10}{12}$
- D.  $\frac{14}{6}$



- 2 All students in Mr. Keller's class are reading the same book. This chart shows the fraction of the book each of four students has read.

**Student Reading**

Student	Fraction of Book Read
Alexandra	$\frac{7}{8}$
Grace	$\frac{3}{4}$
Noah	$\frac{5}{12}$
Spencer	$\frac{2}{3}$

Which list shows the fractions in order from least to greatest?

- A.  $\frac{2}{3}, \frac{3}{4}, \frac{5}{12}, \frac{7}{8}$
- B.  $\frac{2}{3}, \frac{3}{4}, \frac{7}{8}, \frac{5}{12}$
- C.  $\frac{5}{12}, \frac{2}{3}, \frac{3}{4}, \frac{7}{8}$
- D.  $\frac{5}{12}, \frac{3}{4}, \frac{2}{3}, \frac{7}{8}$



3 At Sugarbranch Farm, it takes 40 gallons of maple tree sap to make 1 gallon of maple syrup. One maple tree can produce 70 gallons of sap in a single year. How many years would it take one maple tree to produce 28 gallons of maple syrup?

- A. 12
- B. 16
- C. 35
- D. 49

4 Which two names could be given to **every** rhombus?

- A. rectangle and square
- B. rectangle and parallelogram
- C. quadrilateral and square
- D. quadrilateral and parallelogram

5 The length of each side of a cube is 8 feet. What is the volume of the cube?

- A. 24 cubic feet
- B. 64 cubic feet
- C. 384 cubic feet
- D. 512 cubic feet

6 The school cook is using ground beef to make tacos.

- 480 students each ordered a taco.
- 3 ounces of ground beef are needed for each taco.

What is the total amount of ground beef needed? [1 pound = 16 ounces]

- A. 10 pounds
- B. 30 pounds
- C. 70 pounds
- D. 90 pounds

- 7 Carlos has a number machine. This table shows his results when he entered three different numbers.

Input	Output
3	7
6	13
11	23

Which table follows the same rule as Carlos's number machine?

A.

Input	Output
2	6
10	14
15	19

B.

Input	Output
2	4
10	28
15	43

C.

Input	Output
2	5
10	11
15	21

D.

Input	Output
2	5
10	21
15	31

- 8 An artist uses the expression  $30 \cdot n + 20$  to calculate the amount of money he will earn for a portrait that takes  $n$  hours to draw. How much money will the artist earn for a portrait that takes 5 hours to draw?

- A. \$750  
 B. \$700  
 C. \$170  
 D. \$ 55

- 9 Each  $\square$  represents the same value in this number sentence.

$$3 \times (\square + \square) = 54$$

What is the value of one  $\square$ ?

- A. 6  
 B. 9  
 C. 18  
 D. 81

- 10 This table shows the number of players at a basketball practice who made 25 foul shots in a given number of minutes.

**Foul Shots**

Number of Minutes	Number of Players
0–4	3
5–9	8
10–14	5
15–19	2

What is the total number of players who took less than 10 minutes to make 25 foul shots?

- A. 16  
 B. 11  
 C. 8  
 D. 5

- 11 A restaurant owner handed out surveys to 60 customers. Only 12 of the surveys were returned. Write **two** fractions that represent the part of the surveys that were returned.

- 12 Using cards, Pedro made this number sentence.

$$\boxed{\star} \div \boxed{4} = \boxed{12}$$

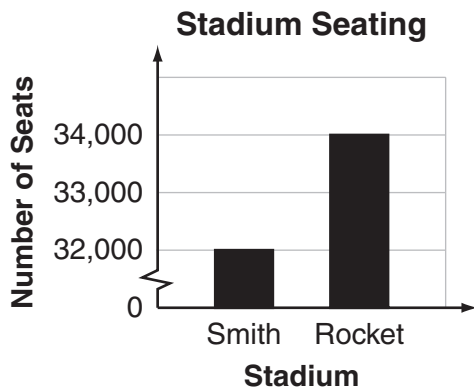
What number belongs in place of the star to make the number sentence true?

- 13 A satellite orbits Earth every 7200 seconds. How many times does the satellite orbit Earth in 1 day? Show your work or explain how you know.

1 day = 24 hours  
1 hour = 60 minutes  
1 minute = 60 seconds



- 14 Tyler made the graph below to show the numbers of seats at two different sports stadiums.



- a. Based on the sizes of the bars in the graph, Anton thinks Rocket Stadium has three times the number of seats Smith Stadium has. Explain why this is **not** correct.
- b. How could Tyler change the graph to show that the two stadiums have about the same number of seats?

15 Pizza Palace sells large pizzas and small pizzas.

- One large pizza serves 5 people and costs \$12.
- One small pizza serves 3 people and costs \$7.

Mr. Spencer needs to buy enough pizzas to serve 14 people. Mr. Spencer can only buy whole pizzas.

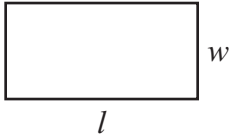
- a. Mr. Spencer wants to buy exactly 2 large pizzas and some small pizzas to serve 14 people. What is the **fewest** number of small pizzas he needs to buy in addition to the 2 large pizzas? Show your work or explain how you know.
  
- b. How many large pizzas and how many small pizzas should Mr. Spencer buy to spend the **least** amount of money and have enough pizza to serve the 14 people? Show your work or explain how you know your answer will result in Mr. Spencer spending the **least** amount of money.

# New England Common Assessment Program

## Mathematics Reference Sheet – Grade 6

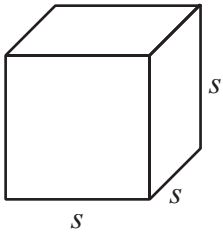
Use the information below as needed to answer questions on the mathematics test.

### Rectangle



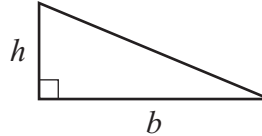
$$\begin{aligned}\text{Area} &= \text{length} \cdot \text{width} \\ &= l \cdot w\end{aligned}$$

### Cube



$$\begin{aligned}\text{Volume} &= \text{side} \cdot \text{side} \cdot \text{side} \\ &= s \cdot s \cdot s\end{aligned}$$

### Right Triangle



$$\begin{aligned}\text{Area} &= \frac{1}{2} \cdot \text{base} \cdot \text{height} \\ &= \frac{1}{2} \cdot b \cdot h\end{aligned}$$

**Mean:** The mean of a data set is the sum of all the values divided by the number of values.

**Median:** The median of a data set is the middle value or average of the two middle values when the values are arranged in numerical order.

**Mode:** The mode of a data set is the value that occurs most often.