NEW ENGLAND COMMON ASSESSMENT PROGRAM

**Released Items
2013**

**Grade 6
Mathematics**

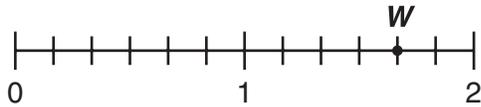# Mathematics

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 ☐ represents the same value in this number sentence.

$$3 \times (\boxed{} + \boxed{}) = 54$$

What is the value of one ☐?

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.

Stadium Seating

Number of Seats

34,000
33,000
32,000
0

Smith   Rocket
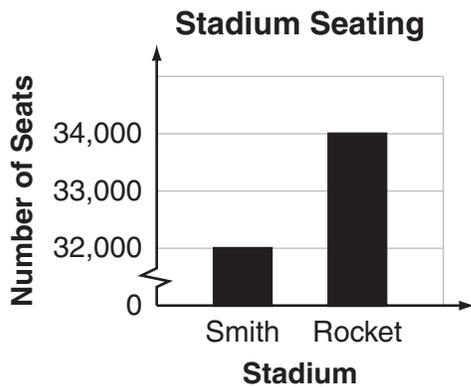
Stadium

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?

⓯ 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
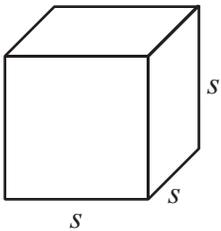# Mathematics Reference Sheet – Grade 6

Use the information below as needed to answer questions on the mathematics test.
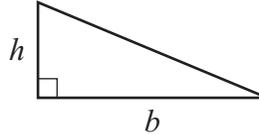
Rectangle
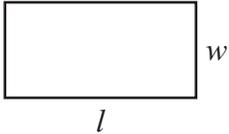
Area = length • width

$$= l \cdot w$$

Right Triangle

$$\text{Area} = \frac{1}{2} \cdot \text{base} \cdot \text{height}$$

$$= \frac{1}{2} \cdot b \cdot h$$

Cube

Volume = side • side • side

$$= s \cdot s \cdot s$$

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.