



**NEW ENGLAND
COMMON ASSESSMENT PROGRAM**

**Released Items
2013**

**Grade 8
Mathematics**

Mathematics



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



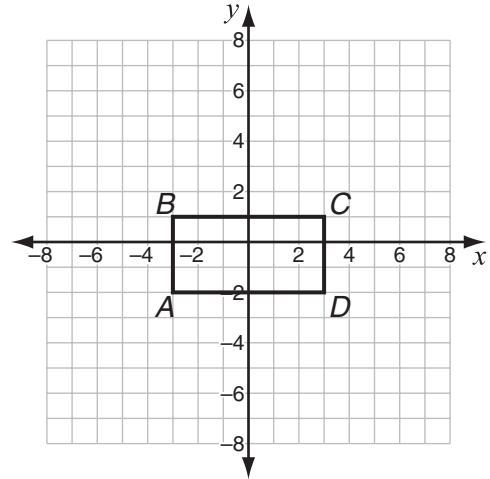
1 A puppy weighs 8 pounds. Its weight when full-grown is expected to be 600% of its current weight. How much is the puppy expected to weigh when it is full-grown?

- A. 14 pounds
- B. 48 pounds
- C. 56 pounds
- D. 75 pounds

2 The ratio of child to teen to adult tickets sold at a water park on Saturday was 4:1:2. A total of 294 tickets were sold. How many child tickets were sold?

- A. 42
- B. 84
- C. 168
- D. 221

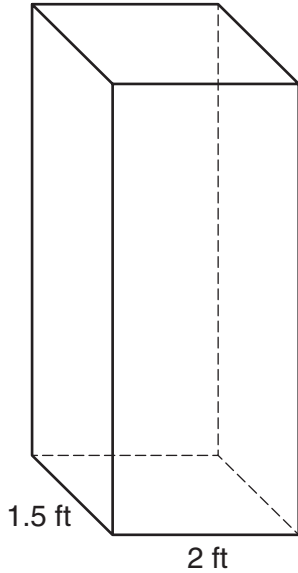
3 Look at this diagram.



Rectangle $ABCD$ is rotated 90° clockwise about point D . What are the coordinates of the image of point A ?

- A. $(-3, -4)$
- B. $(-3, 4)$
- C. $(-3, -8)$
- D. $(3, 4)$

- 4 This rectangular prism has a volume of 12 cubic feet.



not drawn to scale

What is the surface area of the rectangular prism?

- A. 12 square feet
- B. 17 square feet
- C. 28 square feet
- D. 34 square feet

- 5 This table shows the total cost of CDs for members of a CD club.

Number of CDs Bought	Total Cost (dollars)
1	2
2	9
3	16
4	23
⋮	⋮

According to the table, what would be the total cost, in dollars, of 8 CDs?

- A. 30
- B. 46
- C. 51
- D. 58

- 6 This table shows the total cost for different numbers of sweatshirts.

Number of Sweatshirts	Total Cost
1	\$17.50
2	\$25.00
3	\$32.50
4	\$40.00
5	\$47.50
6	\$55.00

Based on information in this table, how is the cost of 12 sweatshirts determined?

- A. Multiply \$17.50 by 12.
- B. Multiply \$55.00 by 2.
- C. Multiply \$7.50 by 12 and subtract \$10.00.
- D. Multiply \$7.50 by 12 and add \$10.00.



- 7 What is the value of y when $y = 2x^3 - 10$ and $x = -5$?
- A. -1010
 - B. -990
 - C. -260
 - D. -40



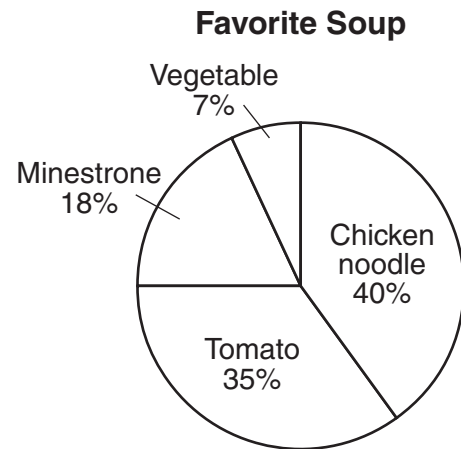
- 8 This formula can be used to determine d , the distance in meters an object falls in t seconds.

$$d = \frac{1}{2}(9.8)t^2$$

What distance will an object fall in 10 seconds?

- A. 245 meters
- B. 490 meters
- C. 2401 meters
- D. 4802 meters

- 9 This circle graph shows the results of a survey about favorite soups.



A total of 300 people were surveyed. How many more people chose chicken noodle soup than chose tomato soup?

- A. 5
- B. 15
- C. 40
- D. 75

- 10 This table shows the types of movies that some students prefer.

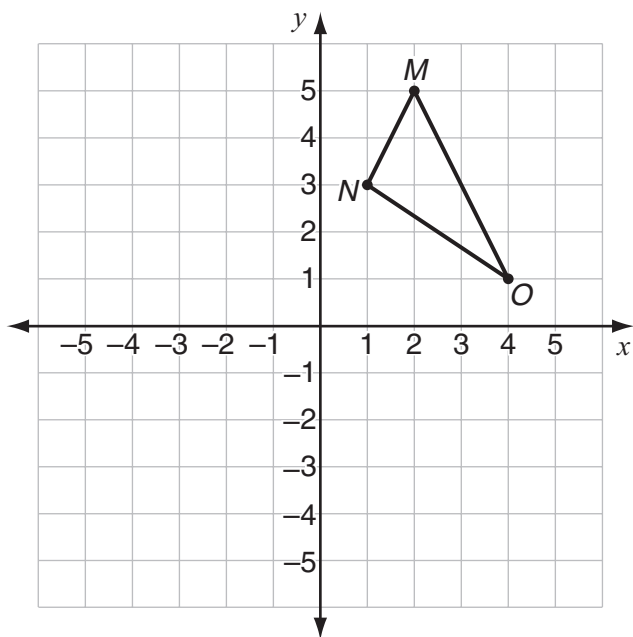
Movie Preferences

	Action	Comedy	Drama	Thriller
Boys	6	5	1	5
Girls	5	7	3	3

Given that a student prefers comedy, what is the probability that the student is a boy?

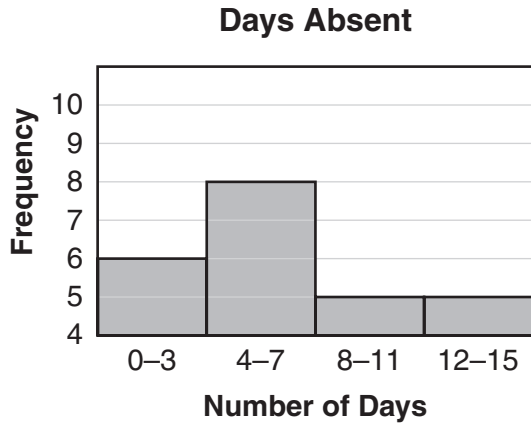
- A. $\frac{1}{7}$
- B. $\frac{5}{17}$
- C. $\frac{5}{12}$
- D. $\frac{5}{7}$

- 11 Look at triangle MNO on this coordinate grid.



Triangle MNO is reflected across the y -axis to form triangle $M'N'O'$. Then triangle $M'N'O'$ is reflected across the x -axis to form triangle $M''N''O''$. After the two reflections, what are the coordinates for vertex M'' ?

- 12 A teacher recorded the number of days each student in a class was absent during a school year. A student in the class made this histogram to display the teacher's data.



Kevin said that the number of students absent 4 to 7 days is twice the number of students absent 0 to 3 days because the bar is twice as tall. Jill said Kevin was incorrect because 8 students were absent 4 to 7 days and 6 students were absent 0 to 3 days.

Explain why Kevin was misled by the histogram.

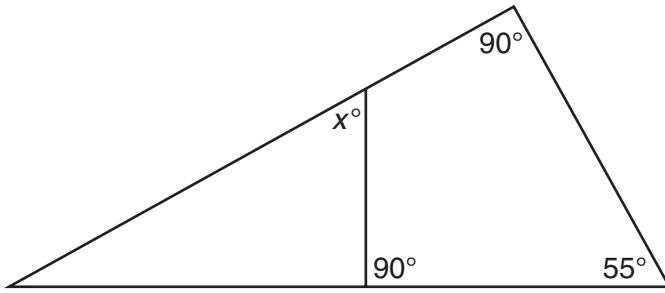


- 13 Look at this number line.



- a. What point on the number line shows the location of $\frac{4}{5}$?
- b. What point on the number line shows the location of $\frac{5}{8}$?

- 14 Look at this diagram.



What is the value of x ? Show your work or explain how you know.

- 15 Diana makes bracelets to sell at a craft fair. She sells the bracelets for \$5.00 each.
- Write an expression to represent Diana's total sales, in dollars, for selling b bracelets.

It costs Diana \$1.00 for materials to make each bracelet. She rents a space at the craft fair for the whole season for \$75.

- Write an equation that can be used to calculate the amount of profit, p , Diana earns at the end of the season for selling b bracelets. Be sure to use both p and b in your equation.
[profit = total sales – total expenses]

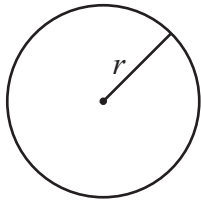
Diana has a goal to make a profit of \$325 for the whole season.

- Use your equation from part b to find the number of bracelets Diana must sell to meet her goal. Show your work or explain how you know.

New England Common Assessment Program Mathematics Reference Sheet – Grade 8

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

Circle

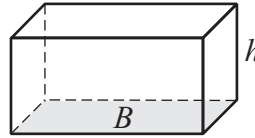


$$\text{Area} = \pi r^2$$

$$\text{Circumference} = 2\pi r$$

$$\pi \approx 3.14$$

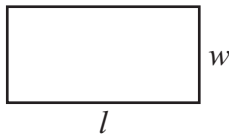
Rectangular Prism



$$\text{Volume} = \text{area of the base} \cdot \text{height}$$

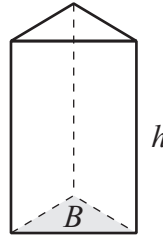
$$= Bh$$

Rectangle



$$\text{Area} = lw$$

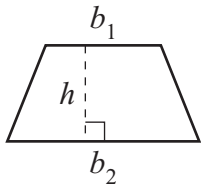
Triangular Prism



$$\text{Volume} = \text{area of the base} \cdot \text{height}$$

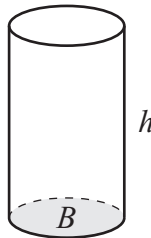
$$= Bh$$

Trapezoid



$$\text{Area} = \frac{1}{2} h(b_1 + b_2)$$

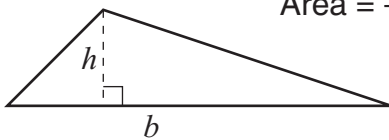
Cylinder



$$\text{Volume} = \text{area of the base} \cdot \text{height}$$

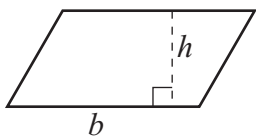
$$= Bh$$

Triangle



$$\text{Area} = \frac{1}{2} bh$$

Parallelogram



$$\text{Area} = bh$$

Sum of Angle Measures in a Polygon

For an n -sided polygon, the sum of the interior angle measures is $180(n - 2)$.

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.