

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.



- 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

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

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. $\frac{5}{7}$



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''?

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.







- 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 $\frac{5}{8}$?



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

(b) Diana makes bracelets to sell at a craft fair. She sells the bracelets for \$5.00 each.

a. 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.

b. 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.

c. 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.





Rectangular Prism



Volume = area of the base • height

$$= Bh$$



Area = lw

Trapezoid

Rectangle



Triangular Prism





Parallelogram



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.