

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 $A B C D$ is rotated $90^{\circ}$ 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 <br> Bought | Total Cost <br> (dollars) |
| :---: | :---: |
| 1 | 2 |
| 2 | 9 |
| 3 | 16 |
| 4 | 23 |
| $\vdots$ | $\vdots$ |

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 <br> 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 $y=2 x^{3}-10$ 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 $M N O$ on this coordinate grid.


Triangle $M N O$ is reflected across the $y$-axis to form triangle $M^{\prime} N^{\prime} O^{\prime}$. Then triangle $M^{\prime} N^{\prime} O^{\prime}$ is reflected across the $x$-axis to form triangle $M^{\prime \prime} N^{\prime \prime} O^{\prime \prime}$. After the two reflections, what are the coordinates for vertex $M^{\prime \prime}$ ?
(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.

Days Absent


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.
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.

## Circle



Rectangle


## Trapezoid



## Triangle



## Parallelogram



Area $=b h$

## Sum of Angle Measures in a Polygon

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

## Rectangular Prism



$$
\begin{aligned}
\text { Volume } & =\text { area of the base } \cdot \text { height } \\
& =B h
\end{aligned}
$$

Triangular Prism


$$
\begin{aligned}
\text { Volume } & =\text { area of the base } \cdot \text { height } \\
& =B h
\end{aligned}
$$

## Cylinder



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.

