

## Non-Calculator

1.

1

A babysitter earns \$8 an hour for babysitting 2 children and an additional \$3 tip when both children are put to bed on time. If the babysitter gets the children to bed on time, what expression could be used to determine how much the babysitter earned?

- A)  $8x + 3$ , where  $x$  is the number of hours
- B)  $3x + 8$ , where  $x$  is the number of hours
- C)  $x(8 + 2) + 3$ , where  $x$  is the number of children
- D)  $3x + (8 + 2)$ , where  $x$  is the number of children

2.

$$\frac{1}{2}x - \frac{1}{4}y = 10$$
$$\frac{1}{8}x - \frac{1}{8}y = 19$$

Which ordered pair  $(x, y)$  satisfies the system of equations above?

- A)  $(-112, -264)$
- B)  $(64, 88)$
- C)  $\left(\frac{232}{3}, \frac{224}{3}\right)$
- D)  $(288, 536)$

3.

$$3(x + y) = y$$

If  $(x, y)$  is a solution to the equation above and

$y \neq 0$ , what is the ratio  $\frac{x}{y}$ ?

- A)  $-\frac{4}{3}$
- B)  $-\frac{2}{3}$
- C)  $\frac{1}{3}$
- D)  $\frac{2}{3}$

4.

In a certain game, a player can solve easy or hard puzzles. A player earns 30 points for solving an easy puzzle and 60 points for solving a hard puzzle. Tina solved a total of 50 puzzles playing this game, earning 1,950 points in all. How many hard puzzles did Tina solve?

- A) 10
- B) 15
- C) 25
- D) 35

5.

To cut a lawn, Allan charges a fee of \$15 for his equipment and \$8.50 per hour spent cutting a lawn. Taylor charges a fee of \$12 for his equipment and \$9.25 per hour spent cutting a lawn. If  $x$  represents the number of hours spent cutting a lawn, what are all the values of  $x$  for which Taylor's total charge is greater than Allan's total charge?

- A)  $x > 4$
- B)  $3 \leq x \leq 4$
- C)  $4 \leq x \leq 5$
- D)  $x < 3$

6.

If  $f(x - 1) = 2x + 3$  for all values of  $x$ , what is the value of  $f(-3)$  ?

- A) -7
- B) -5
- C) -3
- D) -1

7.

A truck enters a stretch of road that drops 4 meters in elevation for every 100 meters along the length of the road. The road is at 1,300 meters elevation where the truck entered, and the truck is traveling at 16 meters per second along the road. What is the elevation of the road, in meters, at the point where the truck passes  $t$  seconds after entering the road?

- A)  $1,300 - 0.04t$
- B)  $1,300 - 0.64t$
- C)  $1,300 - 4t$
- D)  $1,300 - 16t$

8.

Which of the following is equivalent to  $(s - t)\left(\frac{s}{t}\right)$  ?

- A)  $\frac{s}{t} - s$
- B)  $\frac{s}{t} - st$
- C)  $\frac{s^2}{t} - s$
- D)  $\frac{s^2}{t} - \frac{s}{t^2}$

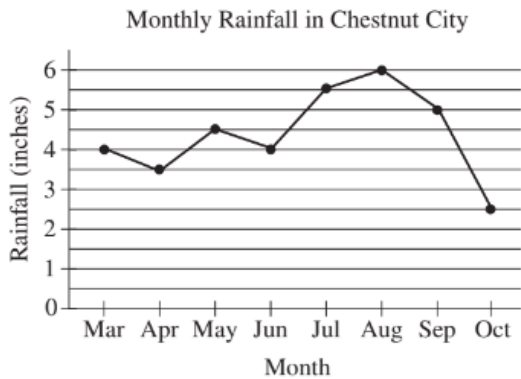
9.

If  $x$  is not equal to zero, what is the value

of  $\frac{4(3x)^2}{(2x)^2}$  ?

Calculator section

10.



The line graph above shows the monthly rainfall from March to October last year in Chestnut City. According to the graph, what was the greatest change (in absolute value) in the monthly rainfall between two consecutive months?

- A) 1.5 inches
- B) 2.0 inches
- C) 2.5 inches
- D) 3.5 inches

11.

A soda company is filling bottles of soda from a tank that contains 500 gallons of soda. At most, how many 20-ounce bottles can be filled from the tank? (1 gallon = 128 ounces)

- A) 25
- B) 78
- C) 2,560
- D) 3,200

12.

A car traveled at an average speed of 80 miles per hour for 3 hours and consumed fuel at a rate of 34 miles per gallon. Approximately how many gallons of fuel did the car use for the entire 3-hour trip?

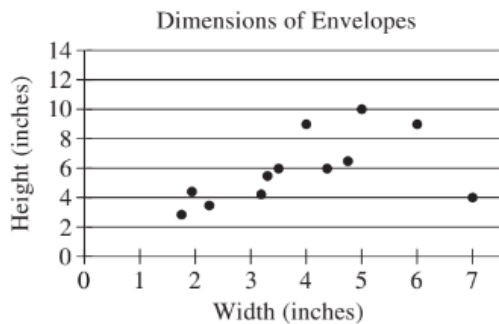
- A) 2
- B) 3
- C) 6
- D) 7

13.

A high school basketball team won exactly 65 percent of the games it played during last season. Which of the following could be the total number of games the team played last season?

- A) 22
- B) 20
- C) 18
- D) 14

14.



The scatterplot above shows the widths and the heights of 12 types of rectangular envelopes. What is the width, in inches, of the envelope represented by the data point that is farthest from the line of best fit (not shown)?

- A) 2
- B) 5
- C) 7
- D) 12

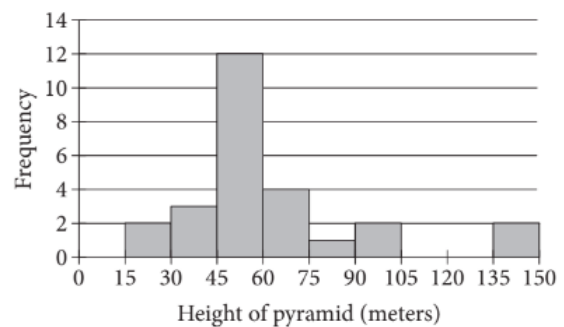
15.

$$110x + y = 1,210$$

A coffee shop is running a promotion where a number of free coffee samples are given away each day. The equation above can be used to model the number of free coffee samples,  $y$ , that remain to be given away  $x$  days after the promotion began. What does it mean that  $(11, 0)$  is a solution to this equation?

- A) During the promotion, 11 samples are given away each day.
- B) It takes 11 days during the promotion to see 1,210 customers.
- C) It takes 11 days during the promotion until none of the samples are remaining.
- D) There are 11 samples available at the start of the promotion.

16.



The histogram above shows the distribution of the heights, in meters, of 26 pyramids in Egypt. Which of the following could be the median height of the 26 pyramids represented in the histogram?

- A) 44 meters
- B) 48 meters
- C) 63 meters
- D) 77 meters

17.

A survey of 170 randomly selected teenagers aged 14 through 17 in the United States was conducted to gather data on summer employment of teenagers. The data are shown in the table below.

	Have a summer job	Do not have a summer job	Total
Ages 14–15	20	69	89
Ages 16–17	39	42	81
Total	59	111	170

14

Which of the following is closest to the percent of those surveyed who had a summer job?

- A) 22%
- B) 35%
- C) 47%
- D) 53%

18.

A survey of 170 randomly selected teenagers aged 14 through 17 in the United States was conducted to gather data on summer employment of teenagers. The data are shown in the table below.

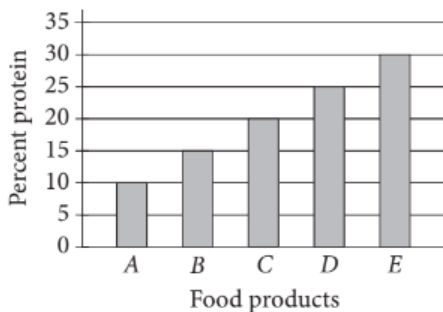
	Have a summer job	Do not have a summer job	Total
Ages 14–15	20	69	89
Ages 16–17	39	42	81
Total	59	111	170

Based on the data, how many times more likely is it for a 14 year old or a 15 year old to NOT have a summer job than it is for a 16 year old or a 17 year old to NOT have a summer job? (Round the answer to the nearest hundredth.)

- A) 0.52 times as likely
- B) 0.65 times as likely
- C) 1.50 times as likely
- D) 1.64 times as likely

19.

Percent Protein in Five Food Products



The graph above shows the amount of protein supplied by five different food products, *A*, *B*, *C*, *D*, and *E*, as a percentage of their total weights. The costs of 10 grams of products *A*, *B*, *C*, *D*, and *E* are \$2.00, \$2.20, \$2.50, \$4.00, and \$5.00, respectively. Which of the five food products supplies the most protein per dollar?

- A) *A*
- B) *B*
- C) *C*
- D) *E*

20.

In a college archaeology class, 78 students are going to a dig site to find and study artifacts. The dig site has been divided into 24 sections, and each section will be studied by a group of either 2 or 4 students. How many of the sections will be studied by a group of 2 students?