

# ANSWER PRESENTATION TOOL

Algebra 2 - Student Edit

1

3 - Practice

1-6,9,11-15,

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1. From the graph, the slope is  $m = \frac{2}{10} = 0.2$  and the y-intercept is  $b = 0$ . Using slope-intercept form, an equation of the line is

$$y = mx + b$$

$$y = 0.2x + 0.$$

The equation is  $y = 0.2x$ . The slope indicates that the tip increases \$0.20 for every dollar spent on the meal.

2. From the graph, the slope is  $m = \frac{-3}{90} = -\frac{1}{30}$  and the y-intercept is  $b = 12$ . Using slope-intercept form, an equation of the line is

$$y = mx + b$$

$$y = -\frac{1}{30}x + 12.$$

The equation is  $y = -\frac{1}{30}x + 12$ . The slope indicates that the amount of fuel in the gasoline tank decreases by  $\frac{1}{30}$  gallon per mile driven.

3. From the graph, the slope is  $m = \frac{100}{2} = 50$  and the y-intercept is  $b = 100$ . Using slope-intercept form, an equation of the line is

$$y = mx + b$$

$$y = 50x + 100.$$

The equation is  $y = 50x + 100$ . The slope indicates that the savings account balance increases by \$50 per week.

4. From the graph, the slope is  $m = \frac{6}{4} = 1.5$  and the y-intercept is  $b = 0$ . Using slope-intercept form, an equation of the line is

$$y = mx + b$$

$$y = 1.5x + 0.$$

The equation is  $y = 1.5x$ . The slope indicates that the height of the tree increases by 1.5 feet per year.

5. From the graph, the slope is  $m = \frac{165 - 55}{3 - 1} = \frac{110}{2} = 55$

and the y-intercept is  $b = 0$ . Using slope-intercept form, an equation of the line is

$$y = mx + b$$

$$y = 55x + 0.$$

The equation is  $y = 55x$ . The slope indicates that the typing rate is 55 words per minute.

6. From the graph, the slope is  $m = \frac{300 - 180}{3 - 5} = \frac{120}{-2} = -60$ .

Using slope-intercept form, an equation of the line is

$$y - y_1 = m(x - x_1)$$

$$y - 300 = -60(x - 3)$$

$$y = -60x + 480.$$

The equation is  $y = -60x + 480$ . The slope indicates that the water level in the swimming pool decreases by 60 cubic feet per hour.

9. The slope formula was used incorrectly. The change in  $y$  goes in the numerator, not the denominator.

$$m = \frac{23 - 17}{20 - 12} = \frac{6}{8} = \frac{3}{4}$$

$$y - 17 = \frac{3}{4}(x - 12)$$

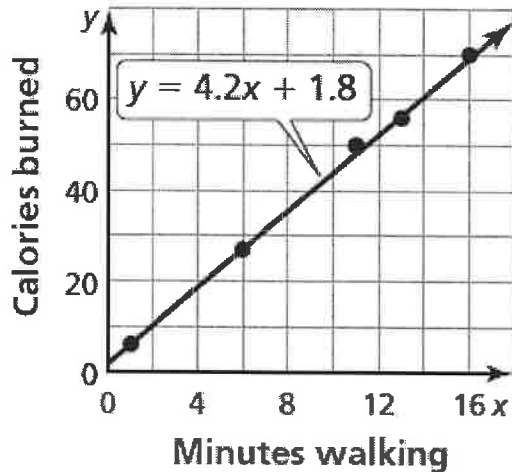
$$y - 17 = \frac{3}{4}x - 9$$

$$y = \frac{3}{4}x + 8$$

### 11. Sample answer:

**Step 1** Draw a scatter plot of the data. The data show a linear relationship.

**Step 2** Sketch the line that most closely appears to fit the data. One possible line is shown.



**Step 3** Choose two points on the line. For the line shown, you might choose (1, 6) and (6, 27).

**Step 4** Write the equation of the line. First, find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{27 - 6}{6 - 1} = \frac{21}{5} = 4.2$$

Use the point-slope form to write an equation.

Use  $(x_1, y_1) = (1, 6)$ .

$$y - y_1 = m(x - x_1)$$

$$y - 6 = 4.2(x - 1)$$

$$y - 6 = 4.2x - 4.2$$

$$y = 4.2x + 1.8$$

Use the equation to estimate the number of calories burned.

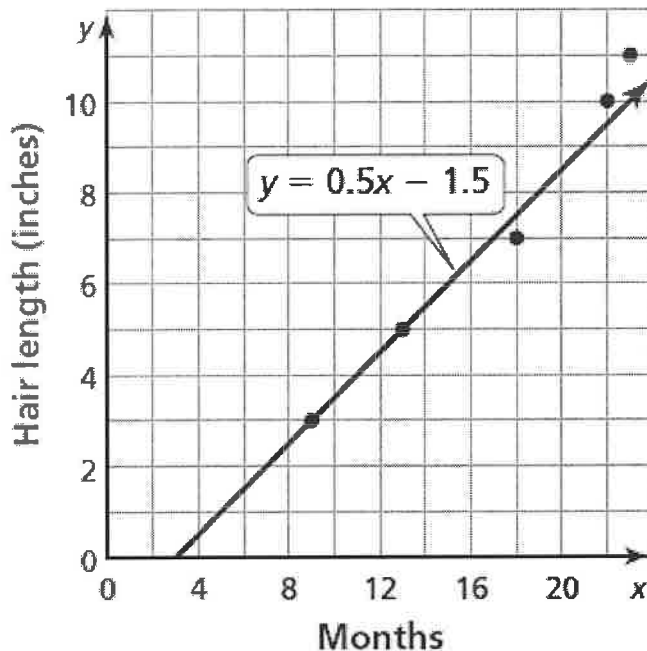
$$y = 4.2(15) + 1.8 = 64.8$$

The approximate number of calories burned when you walk for 15 minutes is 64.8 calories.

**12. Sample answer:**

**Step 1** Draw a scatter plot of the data. The data show a linear relationship.

**Step 2** Sketch the line that most closely appears to fit the data. One possible line is shown.



**Step 3** Choose two points on the line. For the line shown, you might choose (9, 3) and (13, 5).

**Step 4** Write the equation of the line. First, find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - 3}{13 - 9} = \frac{2}{4} = 0.5$$

Use point-slope form to write an equation.

Use  $(x_1, y_1) = (9, 3)$ .

$$y - y_1 = m(x - x_1)$$

$$y - 3 = 0.5(x - 9)$$

$$y - 3 = 0.5x - 4.5$$

$$y = 0.5x - 1.5$$

Use the equation to estimate the length of hair.

$$y = 0.5(15) - 1.5 = 6$$

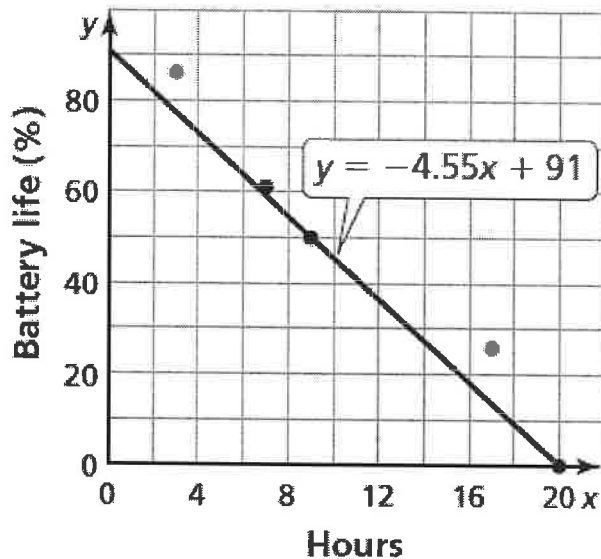
The approximate hair length after 15 months is 6 inches

The approximate hair length after 15 months is 9 inches.

13. *Sample answer:*

**Step 1** Draw a scatter plot of the data. The data show a linear relationship.

**Step 2** Sketch the line that most closely appears to fit the data. One possible line is shown.



**Step 3** Choose two points on the line. For the line shown, you might choose (9, 50) and (20, 0).

**Step 4** Write the equation of the line. First, find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{0 - 50}{20 - 9} = \frac{-50}{11} \approx -4.55$$

Use point-slope form to write an equation.

Use  $(x_1, y_1) = (20, 0)$ .

$$y - y_1 = m(x - x_1)$$

$$y - 0 = -4.55(x - 20)$$

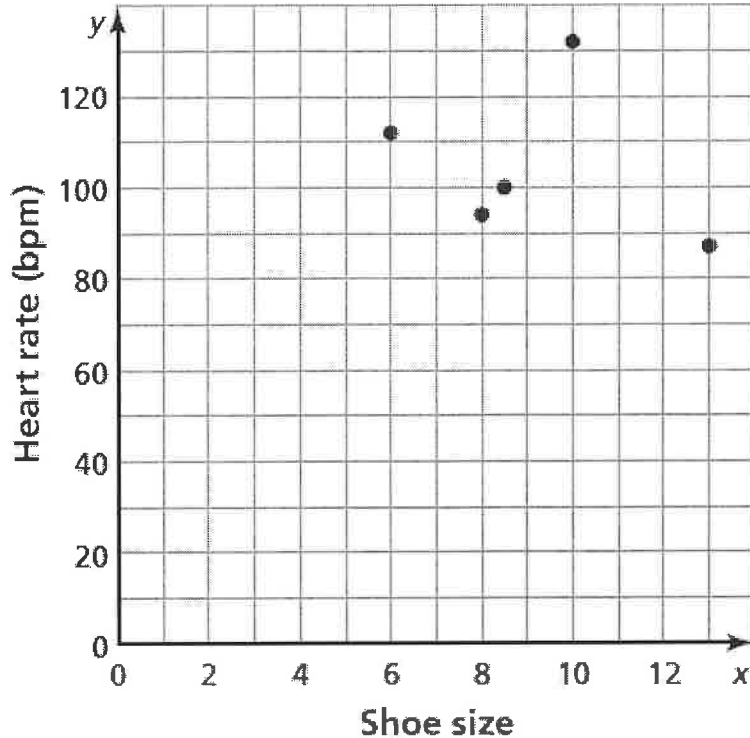
$$y = -4.55x + 91$$

Use the equation to estimate the battery life.

$$y = -4.55(15) + 91 = 22.75$$

The approximate battery life after 15 hours is 23%.

14. Draw a scatter plot of the data. The data do not show a linear relationship.



15. An equation of the line of best fit is  $y = 723.2x + 31,867.5$ .

Average annual tuition and fees are increasing at the rate of \$723.20 per year since the 2012–2013 academic year. The average annual tuition and fees were \$31,867.50 during the 2012–2013 academic year.

In the 2022–2023 academic year,  $x = 10$ .

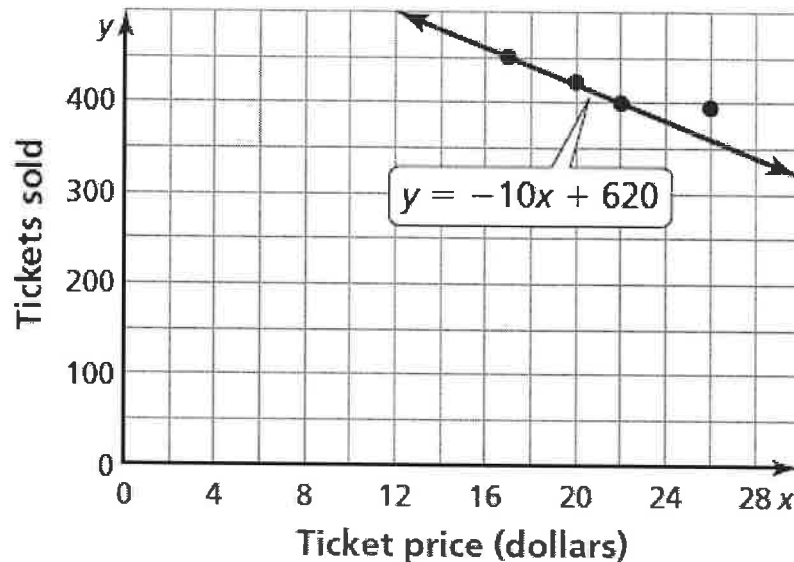
$$y = 723.2(10) + 31,867.5 = 39,099.5$$

The average annual tuition and fees in the 2022–2023 academic year is about \$39,099.50.

21. *Sample answer:*

**Step 1** Draw a scatter plot of the data. The data show a linear relationship.

**Step 2** Sketch the limit that most closely appears to fit the data. One possible line is shown.



**Step 3** Choose two points on the line. For the line shown, you might choose (17, 450) and (22, 400).

**Step 4** Write the equation of the line. First, find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{400 - 450}{22 - 17} = \frac{-50}{5} = -10$$

Use point-slope form to write an equation.

Use  $(x_1, y_1) = (17, 450)$ .

$$y - y_1 = m(x - x_1)$$

$$y - 450 = -10(x - 17)$$

$$y - 450 = -10x + 170$$

$$y = -10x + 620$$

Use the equation to estimate the number of tickets sold.

$$y = -10(85) + 620$$

$$= -230$$

The approximate number of tickets sold when the price is



$\$85$  is  $-230$ . This does not seem reasonable because the number of tickets sold is less than zero.

