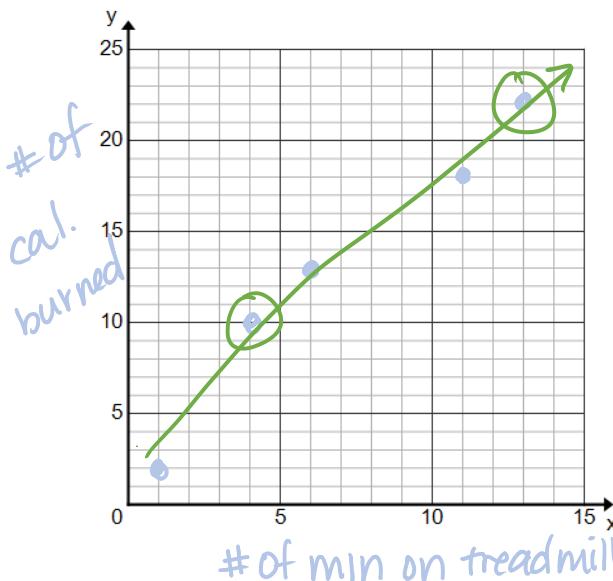


Unit 4 Part II - Day 22 Review

Example 1 (Without a calculator): The table shows the number of minutes Miss Palumbo walks on the treadmill and the number of calories burned.

- A. Graph the points below. Label the axes.



of min
calories burned

x	1	4	6	11	13
y	2	10	13	18	22

- B. Does this describe a positive, negative, or no correlation?

Positive

- C. What are the independent and dependent variables?

indep = # of min

dep = calories burned

- D. Use a ruler to draw a line of best fit.

- E. Choose two points on your line of best fit.

Point (4, 10) and Point (13, 22)

$$m = \frac{22-10}{13-4} = \frac{12}{9} = \left(\frac{4}{3}\right)$$

- G. What does the slope represent?

For every 3 min, she burns 4 calories

- I. How many calories are burned after 16 minutes?

$$x=16$$

$$y = \frac{4}{3}(16) + \frac{14}{3}$$

$$y \approx 26 \text{ calories}$$

- F. Write an equation in point-slope form and then convert to slope-intercept form.

$$3. [y-10] = \left[\frac{4}{3}(x-4)\right] \cdot 3$$

$$3(y-10) = 4(x-4)$$

$$3y-30 = 4x-16$$

$$3y = 4x+14 \Rightarrow y = \frac{4}{3}x + \frac{14}{3}$$

- H. What does the y-intercept represent?

$\frac{14}{3} \Rightarrow$ starts by burning that many calories

- J. How long does Miss Palumbo have to walk on the treadmill to burn 45 calories? Find x

$$y=45$$

$$45 = \frac{4}{3}x + \frac{14}{3}$$

$$\underline{-\frac{14}{3}} \qquad \underline{-\frac{14}{3}}$$

$$3. \frac{121}{3} = \frac{4}{3}x \cdot 3 \Rightarrow 121 = 4x$$

$$x \approx 30.25 \text{ min}$$

Example 2 (With a Calc): The data below shows The Daily Scoop's ice cream sales for a week this past summer.

y	Ice Cream Sales	\$614	\$412	\$522	\$406	\$332	\$325	\$215
x	Temperature	86°	70°	76°	71°	65°	64°	59°

- a) Identify the independent and dependent variables.

Independent: temperature

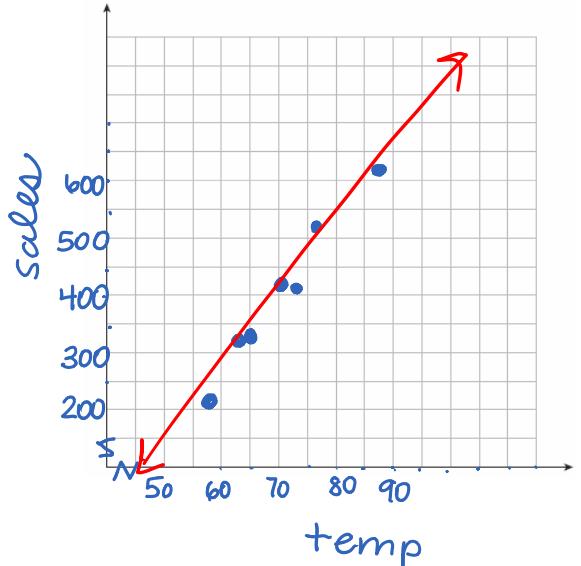
Dependent: Ice Cream Sales

- b) Label your axes, create a scale and make a scatter plot.

- c) Describe the correlation of the data:

as the temp ↑, ice cream sales ↑

- d) Using your calculator, find the line of best fit from the data above.



$$y = 14.71x - 627.81$$

- e) Explain the meaning of the y-intercept.

$$(0, -627.81)$$

if it is 0° outside,
ice cream sales would
be -\$627.81 \Rightarrow doesn't
make sense in context

- f) Explain the meaning of the slope.

$$m = \frac{14.71}{1} = \frac{\text{Sales}}{^\circ}$$

ice cream sales increase
by \$14.71 for every 1° increase
in temp

- g) Using the line of best fit, what could you expect the temperature to have been in Clarendon Hills if The Daily Scoop's ice cream sales were \$600?

$$600 = 14.71x - 627.81$$

$$x = 83.49^\circ$$

- h) Using the line of best fit, what could you expect The Daily Scoop's ice cream sales to be if the temperature in Clarendon Hills was 75°?

$$y = 14.71(75) - 627.81$$

$$\boxed{\$475.14}$$