Score: _____   NAME: _Key_____

Algebra 1 Semester 1

Assessment Training Practice #5B

1.)   What type of correlation would you expect for each situation?

a.)   The distance that a person runs and the number of minutes.

Breaking it down: The distance that a person runs: _increases ↑_

The number of minutes: _increases ↑_

What type of correlation: _Positive Correlation_

b.)   A person's shoe size in inches and the number of miles they drive.

Breaking it down: A person's shoe size (inches) : _increases ↑_

The number of miles they drive: _NA_

What type of correlation: _No Correlation_

c.)   The amount of money a person spends shopping and the amount of total money a person has.

Breaking it down: The amount of money a person spends shopping: _increases ↑_
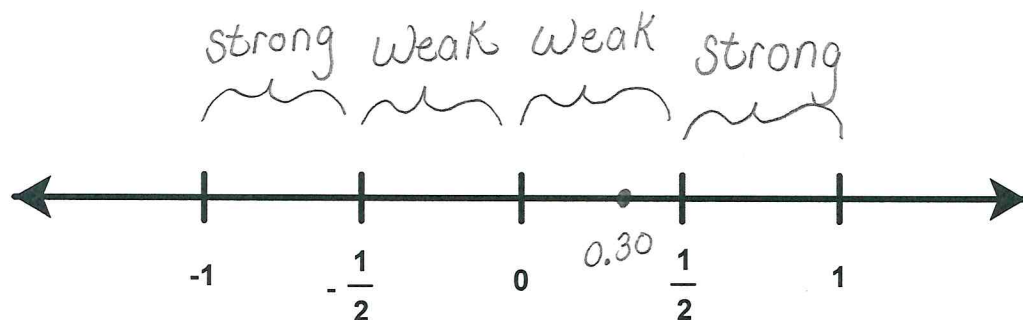
The amount of total money a person has: _decreases ↓_

What type of correlation: _Negative Correlation_

2.) Use the number line below and describe what a correlation coefficient tells about a set of data. Put an example of an r value on the number line and explain what it means.
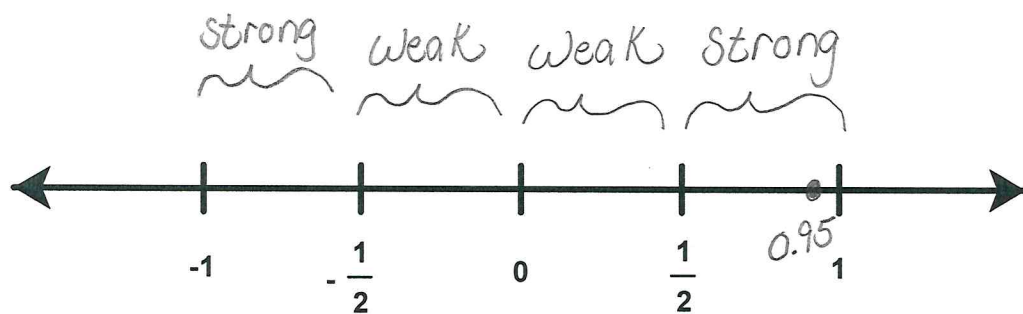
2a.) Positive and weak correlation   r = ___0.30___

strong weak weak strong

-1 $-\frac{1}{2}$ 0   0.30 $\frac{1}{2}$ 1

The correlation coefficient of 0.30 indicates a weak relationship between the two variables. The positive value means an increasing line.
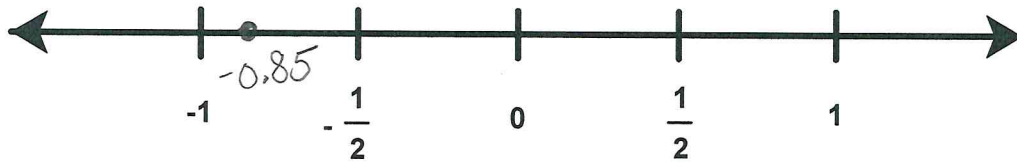
2b.) Positive and strong correlation   r = ___0.95___

strong weak weak strong

-1 $-\frac{1}{2}$ 0 $\frac{1}{2}$ 0.95   1

The correlation coefficient of 0.95 indicates a strong relationship between the two variables. The positive value means an increasing line.

2c.) Negative and strong correlation   r = -0.85

Strong   weak   weak   strong

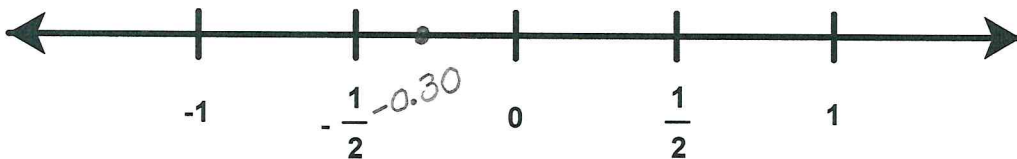-1 -0.85 $-\dfrac{1}{2}$ 0 $\dfrac{1}{2}$ 1

The correlation of -0.85 indicates a strong relationship between the two variables. The negative value means a decreasing line.

2d.) Negative and weak correlation   r = -0.30
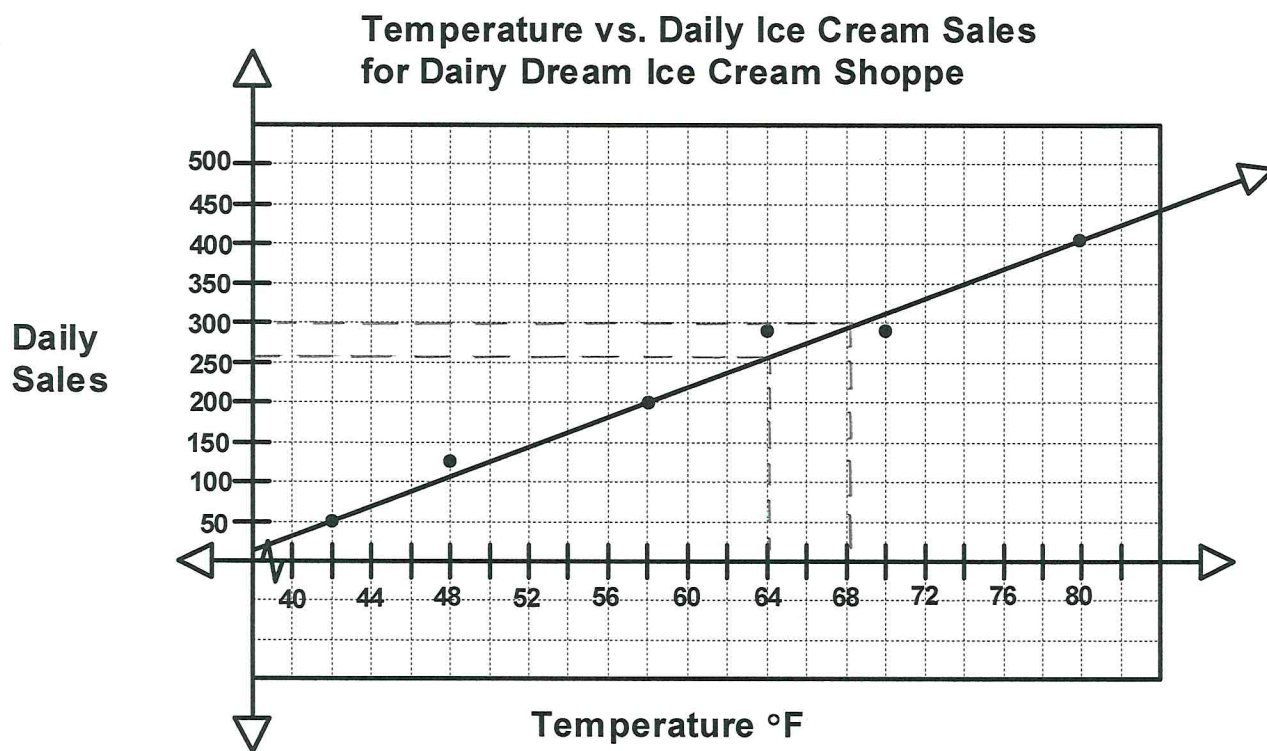
strong   weak   weak   strong

-1 $-\dfrac{1}{2}$ -0.30 0 $\dfrac{1}{2}$ 1

The correlation coefficient of -0.30 indicates a weak relationship between the two variables. The negative value means a decreasing line.

Use the line of best fit to answer questions 3 and 4

**Temperature vs. Daily Ice Cream Sales
for Dairy Dream Ice Cream Shoppe**

Daily Sales (y-axis): 50, 100, 150, 200, 250, 300, 350, 400, 450, 500

Temperature °F (x-axis): 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80

3.) Based on the line of best fit, predict the daily sales if the temperature was 64 degrees.

Approximately $255.

4.) Based on the line of best fit, predict the temperature if the daily sales was $300.

Approximately 68°

Use the table of values to answer questions 5 – 7.

x Speed (mi/h)	*y* Stopping Distances (ft)
10	26
15	45
20	64
25	83
30	110
35	135
40	163
45	198

5.)   Enter this data into your calculator.

What is the slope? ≈ 4.8

What is the y-intercept? ≈ -30.2

What is the correlation coefficient? $\approx .994$

What is the best fit line? $y = 4.8x - 30.2$

6.)   Using your best fit line for this data, predict what is the stopping distance after 60 miles per hour.

Approximately 258 ft.

7.)   Using your best fit line for this data, predict the speed in miles per hour it would take for the stopping distances to be 230 feet.

Approximately 54 miles per hour

6.) $y = mx + b$
$y = 4.8 \cdot (60) - 30.2$
$y = 257.8$

7.) $y = mx + b$
$230 = 4.8x - 30.2$
$+ 30.2 \qquad\qquad + 30.2$
$\dfrac{260.2}{4.8} = \dfrac{4.8x}{4.8} \qquad 54.2 \approx x$

Use the table of values to answer questions 8 – 10.

x

y

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999
Attendance (Millions)	250	261	278	261	275	293	298	298	310
Revenue (Billions of Dollars)	6.2	6.4	6.9	7.1	7.3	7.8	8.3	8.6	9.2

8.) Enter this data into your calculator.

What is the slope? ≈ 0.05

What is the y-intercept? ≈ -5.7

What is the correlation coefficient? $\approx .95$

What is the best fit line? $y = 0.05x - 5.7$

9.) Use your line of best fit to determine how many people must go to the parks before they make 13 billion dollars.

___Approximately 374 million people___

10.) Use your line of best fit to determine how much money the parks made when there were 150 million people in attendance.

___Approximately 1.8 billion dollars___

9.)
$y = mx + b$
$13 = .05 \cdot (x) - 5.7$
$+ 5.7 \qquad + 5.7$
$18.7 = .05x$
$\dfrac{18.7}{.05} = \dfrac{.05x}{.05}$
$374 \approx x$

10.)
$y = mx + b$
$y = 0.05 \cdot 150 - 5.7$
$y = 1.8$

Solve and graph the solution on a number line.

11.)

$$5x + 2 < 2x - 4$$

$$\begin{array}{c} -2x \quad\quad -2x \\ 3x + 2 < -4 \\ -2 \quad\quad -2 \\ \dfrac{3x}{3} < \dfrac{-6}{3} \end{array}$$

$$x < -2$$

12.)

$$-4 > 2(-x - 8)$$

$$\begin{array}{c} -4 > -2x - 8 \\ +8 \quad\quad\quad +8 \\ \dfrac{4}{-2} > \dfrac{-2x}{-2} \end{array}$$

$$-2 < x \text{ or } x > -2$$

13.)

$$9n - 8 \leq 12n + 4$$

$$\begin{array}{c} 9n - 8 \leq 12n + 4 \\ -9n \quad\quad -9n \\ -8 \leq 3n + 4 \\ -4 \quad\quad\quad -4 \\ \dfrac{-12}{3} \leq \dfrac{3n}{3} \end{array}$$

$$-4 \leq n \text{ or } n \geq -4$$