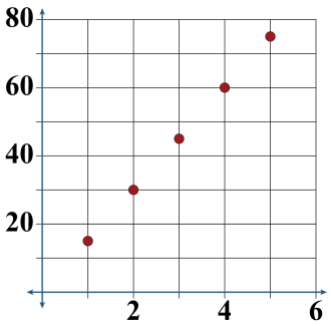
CORRELATION COEFFICIENTS AND TRENDS: GUIDED NOTES

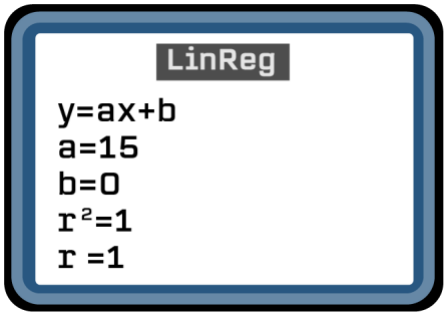
Directions

1) Sketch one single straight line that you think best fits each set of data.

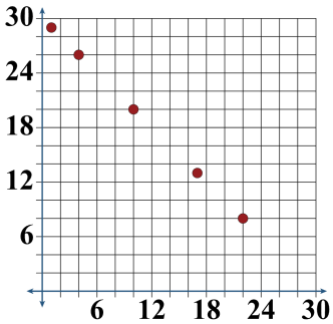
2) Highlight the values for a, b, and r (not r^2).

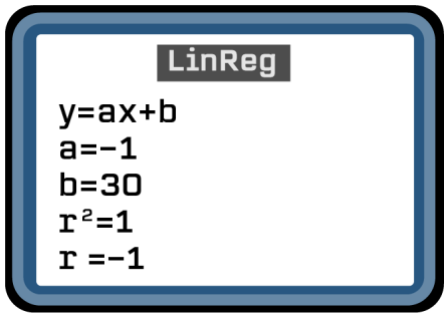
Tickets	Cost
1	$15
2	$30
3	$45
4	$60
5	$75



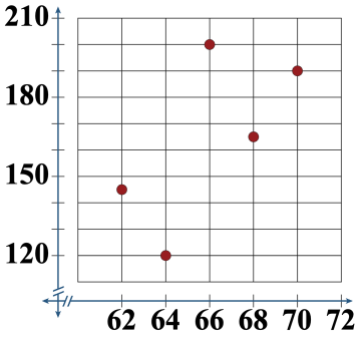


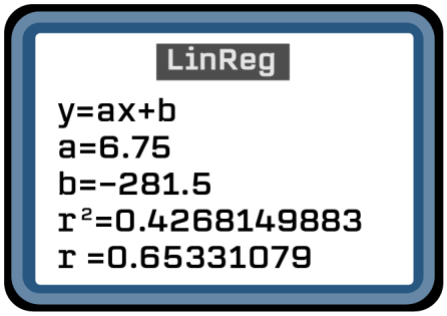
Candy Eaten	Candy Left
1	29
4	26
10	20
17	13
22	8





Height (in.)	Weight (lbs.)
62	145
64	120
66	200
68	165
70	190





Observations

How do you see ***a*** and ***b*** represented on the line you sketched?

Compare the ***r***-values of each data set. What do you think ***r*** represents?

Linear Regression (Formalize Your Findings)

Your calculator uses ***linear regression*** to find a line of best fit, which is also known as a ***linear regression model***.

- a represents the _____ of the line.
- b represents the _____ of the line.
- r is the ***correlation coefficient***. This r-value shows _____.
- The closer the r-value is to _____ or _____, the better the line fits the data.

Linear or Exponential

- If a scatter plot **can** be represented with a straight line, then we say that the trend is _____.
- If a scatter plot **cannot** be represented with a straight line, then we say that the trend is _____.
- When a data set is ***linear***, the y-values change by _____.
- When a data set is ***exponential***, the y-values change by _____.

Example

Week	Account Balance
1	$4.00
2	$8.00
3	$12.00
4	$16.00
5	$20.00

You are saving money to buy a video game. The table shows your account balance at the end of each week. Is the data linear or not linear? How can you tell from the table?

Find the linear regression model for your account balance and write it in the form $y = mx + b$.

Give the correlation coefficient and explain its meaning.

Predict the amount of money in your account after 10 weeks.