Name: Key
UNIT 4

Date: _____
LESSON 6.5

Do Now: Determine if the correlation is positive, negative, or ~~zero~~. no correlation

a) The weight of a steak and the price it costs. . positive

b) The number of people in a limo to the prom and the cost of the limo per person. negative

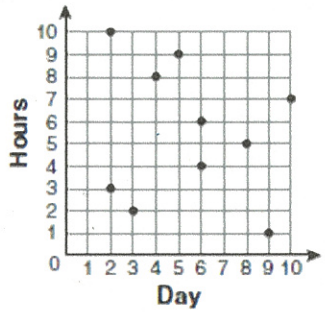
c) The cost of a movie ticket and the number of people in the audience. . no correlation
cost is same no matter what

AIM: GRAPHING SCATTER PLOTS

1. For 10 days, Romero kept a record of the number of hours he spent listening to music. The information is shown in the table below. Which scatter plot shows Romero's data graphically?

Day	1	2	3	4	5	6	7	8	9	10
Hours	9	3	2	6	8	6	10	4	5	2

1)



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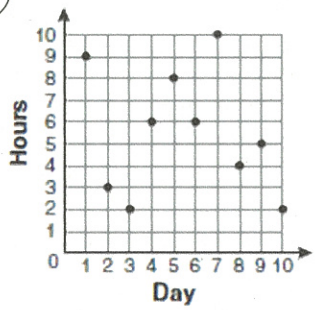

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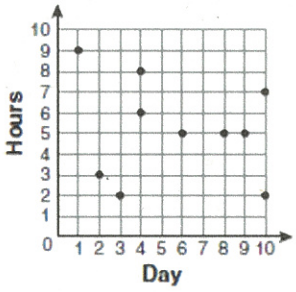

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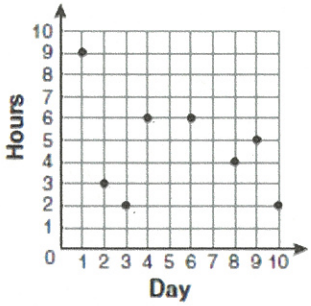
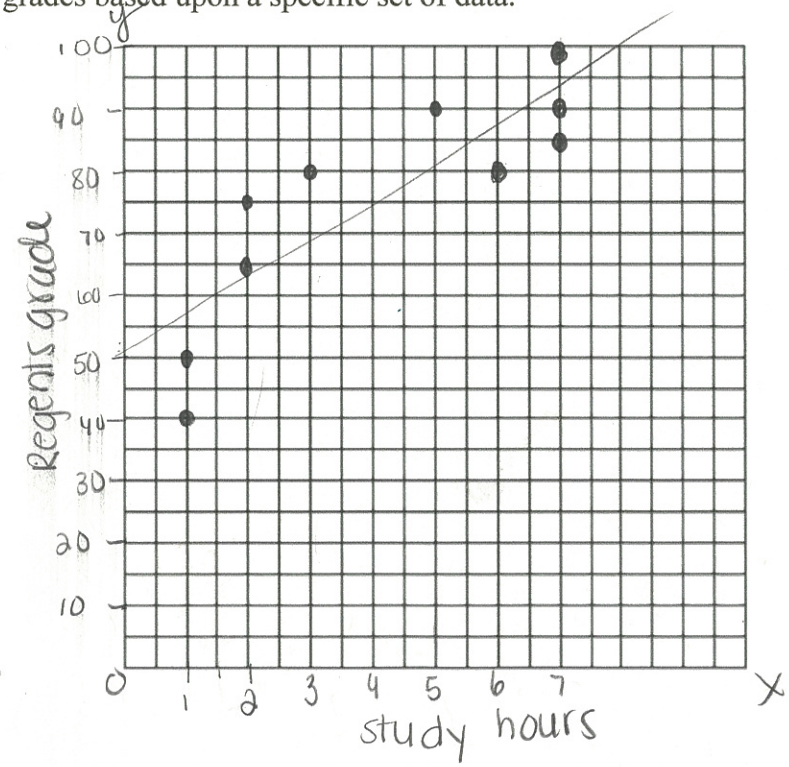


2. Let's decide if studying longer will affect Regents grades based upon a specific set of data.

Study Hours	Regents Score
3	80
5	90
2	75
6	80
7	90
1	50
2	65
7	85
1	40
7	100

r = .85



a. Describe it's correlation: strong + positive

b. Does the data show causation? Explain:

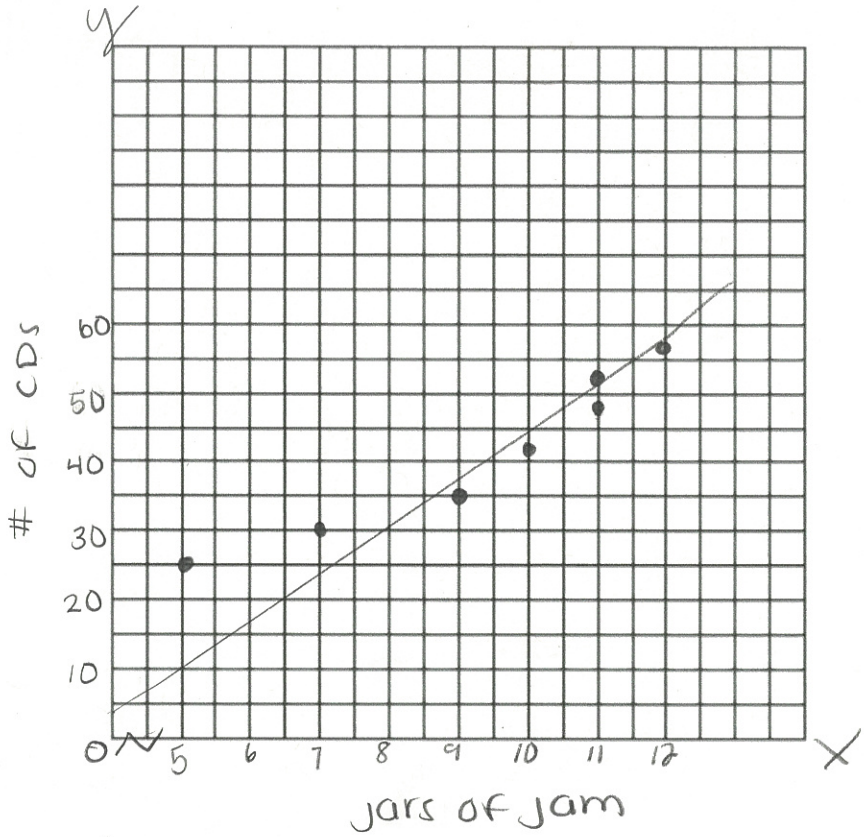
Yes, the more hours you study the higher the grade tends to be

* causal relationship *

1. During the months of February and March, the weekly number of jars of strawberry jam sold at a local market in New York was recorded. For the same time frame, the number of copies of a popular classical music CD sold in Florida was recorded. Let's examine this data.

Weekly Data Collection	
The jars of jam	**The number of CDs**
5 jars	25 CDs
7	30
9	35
10	42
11	48
11	52
12	56

$r = .96$



a. Describe it's correlation: strong + positive

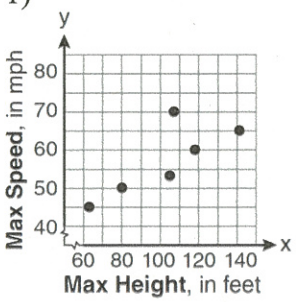
b. Does the data show causation? Explain: NO, the jars of jam does not affect the # of cds you have

*** correlation does not necessarily mean causation :
Just because there is a strong correlation between data, does not necessarily mean that one set of data is causing the affect that is occurring in the other set of data.

2. The maximum height and speed of various roller coasters in North America are shown in the table below. Which graph represents a correct scatter plot of the data?

Maximum Speed, in mph, (x)	45	50	54	60	65	70
Maximum Height, in feet, (y)	63	80	105	118	141	107

1)



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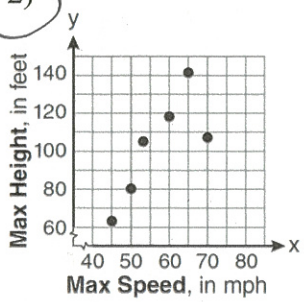
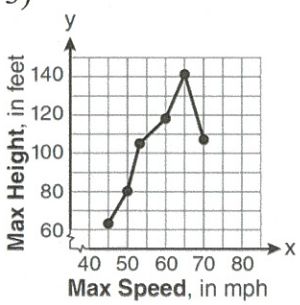


3)



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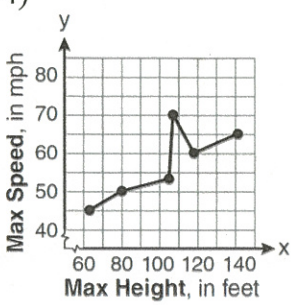
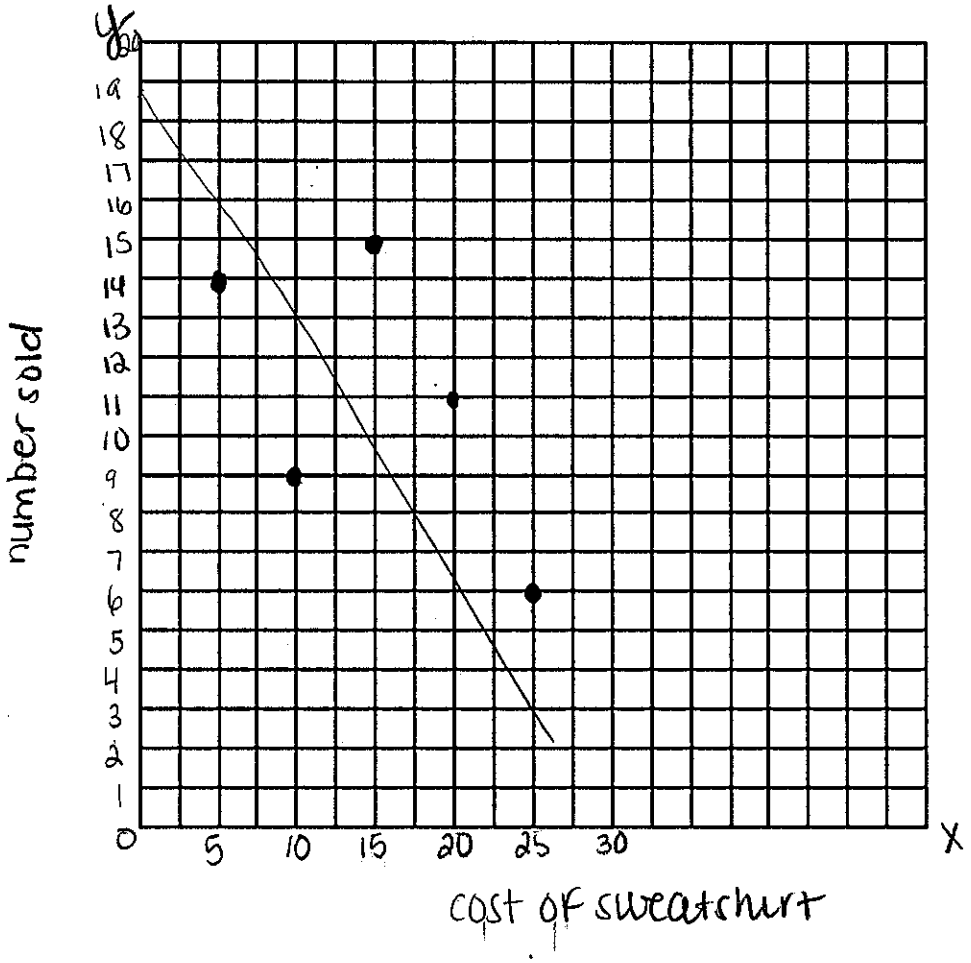


3. The school store did a study comparing the cost of a sweatshirt with the number of sweatshirts sold. The price was changed several times and the numbers of sweatshirts sold were recorded. The data are shown in the table below. Which scatter plot represents the data?

Cost of Sweatshirt	$10	$25	$15	$20	$5
Number Sold	9	6	15	11	14



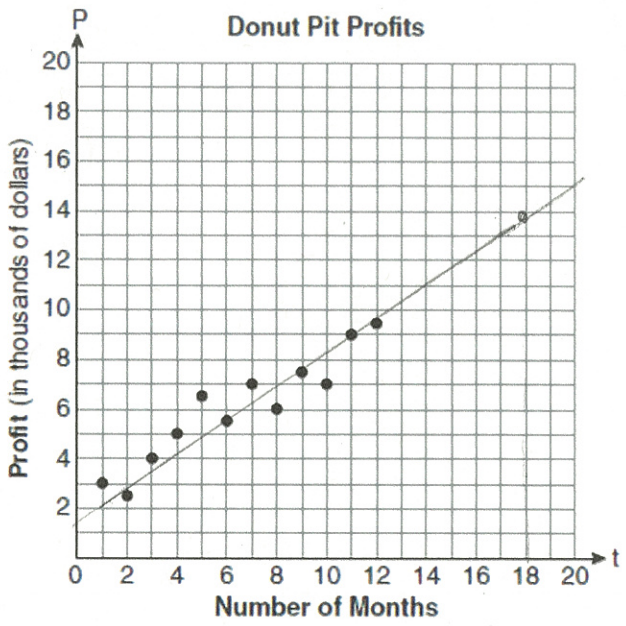
a. Describe it's correlation: weak, negative

b. Does the data show causation? Explain: As the cost of a sweatshirt increases, the number sold tends to decrease

r = -.60

5. Morgan and Dylan opened a new store called the Donut Pit. Their goal is to reach a profit of $20,000 in their 18th month of business. The table and scatter plot below represent the profit, *P*, in thousands of dollars, that they made during the first 12 months.

t (months)	P (profit, in thousands of dollars)
1	3.0
2	2.5
3	4.0
4	5.0
5	6.5
6	5.5
7	7.0
8	6.0
9	7.5
10	7.0
11	9.0
12	9.5



a) Find the equation of the line of best fit. Round values to the nearest hundredth.

$y = .57x + 2.33$

b) Find the value of the correlation coefficient to the nearest thousandth. Explain its meaning.

$r = .95$ (strong positive correlation)

d) Using the line of best fit, predict whether Megan and Bryce will reach their goal in the 18th month of their business.

NO, they will not reach their goal. At 18 months their profit was about 14,000 dollars.