

Use this equation:

$$y = 4x - 9$$

Write the equation of a line that is parallel to this line
and passes through the point (5,1)

$$m = 4$$

same slope

$$y - 1 = 4(x - 5)$$

then use (5,1) to write answer
in Pt-Slope Form

Write the equation of a line that is perpendicular to this line
and passes through the point (-8, 7)

$$y - 7 = -\frac{1}{4}(x + 8)$$

$$m = -\frac{1}{4}$$

opposite reciprocal slope
then use (-8,7) to write
answer in Pt-Slope Form

Use this equation:

$$6x + 3y = 12$$

change to $y = mx + b$ to find the slope

$$y = \frac{12 - 6x}{3} = 4 - 2x$$

$$m = -2$$

Write the equation of a line that is parallel to this line
and passes through the point (-7,4)

same slope: $m = -2$

then use (-7,4) to write answer
in Pt-Slope Form

$$y - 4 = -2(x + 7)$$

Write the equation of a line that is perpendicular to this line
and passes through the point (4, 10)

$$m = +\frac{1}{2}$$

opposite reciprocal slope
then use (4,10) to write answer
in Pt-Slope Form.

$$y - 10 = \frac{1}{2}(x - 4)$$

Use this equation:

$$y = -6$$

this is a Horizontal Line

Write the equation of a line that is parallel to this line
and passes through the point (13, -8)

A parallel line would also be horizontal. EQ: $y = -8$

Write the equation of a line that is perpendicular to this line
and passes through the point (-2, -7)

A perpendicular line would be vertical. EQ: $x = -2$

You can now finish Hwk #29

Sec 6-5

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Problems 3-5, 16, 20, 21, 24, 27, 35-37, 39

1. Make a scatter plot of this data.

# Days	# Sit-ups
3	30
5	33
7	40
11	45
19	62
23	70

2. Draw a trend line.

3. Use the scatter plot to predict the number of sit-ups after 30 days.

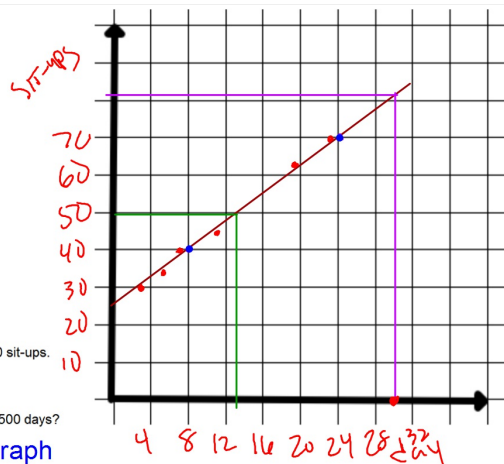
about 81 or 82

4. Use the scatter plot to predict the number of days it will take to do 50 sit-ups.

about 13 or 14

5. How could you predict the number of sit-ups that can be done after 500 days?

this can't be answered using the graph



Writing an equation for a trend line:

1. Pick two points on the trend line
even if they are not data points used to graph the line.
2. Find the slope (rate of change)
3. Write the equation of the line

1. Use the two points in blue on the graph: (24,70) & (8,40)

$$2. m = \frac{70 - 40}{24 - 8} = \frac{30}{16} = \frac{15}{8}$$

$$3. \text{EQ: } y - 40 = \frac{15}{8}(x - 8) \text{ which becomes: } y = \frac{15}{8}x + 25$$

Use this equation to answer the following question.

5. How could you predict the number of sit-ups that can be done after 500 days?

$$y = \frac{15}{8}x + 25$$

$$y = \frac{15}{8}(500) + 25 = 962.5 \approx \text{about 963 pushups.}$$

X VALUE

Correlation: Relationship between two sets of data

Positive Correlation

As one quantity
inc so does the other.
(Pos Slope)

Negative Correlation

As one quantity
inc the other dec.
(Neg Slope)

No Correlation

No obvious
relationship
between the data

Strong Correlation

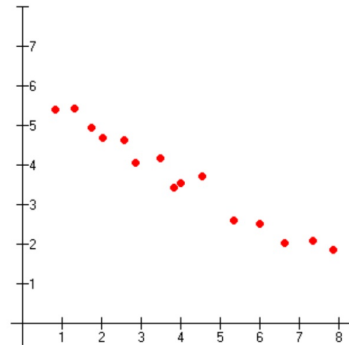
Most points are close
to the trend line.

Weak Correlation

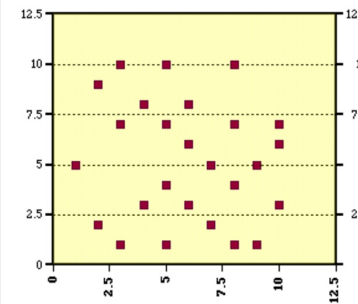
General trend but
points are not all
close to a trend line.



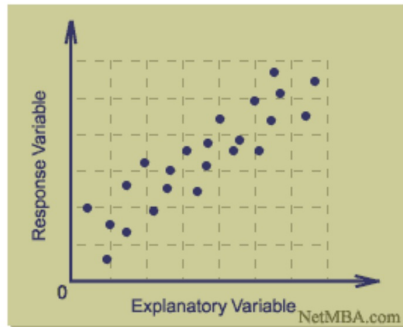
What type of correlation does each graph show?



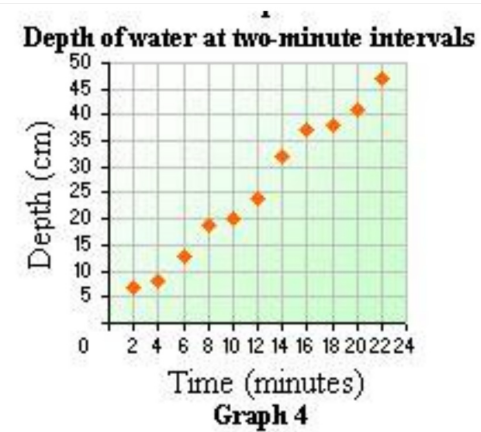
Negative Correlation,
pretty Strong



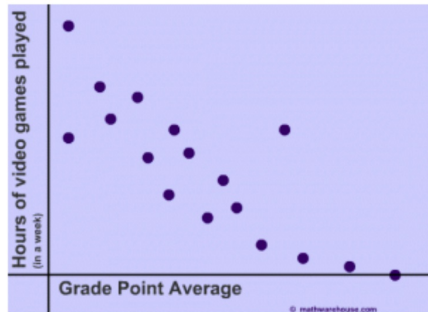
No Correlation



Positive Correlation
rather Weak

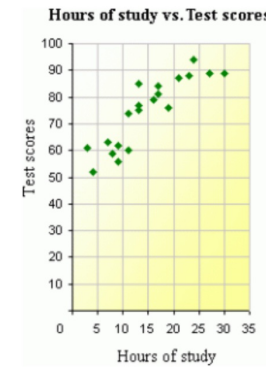


Positive Correlation
quite Strong



Negative Correlation
rather Weak

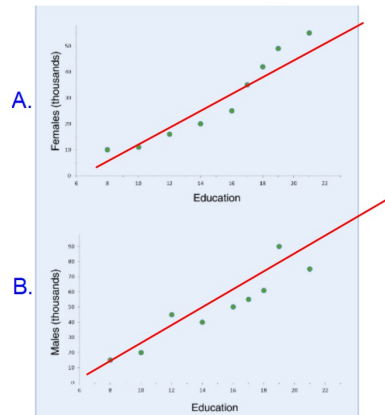
Is this a Strong or Weak Positive Correlation?



"Strong" and "Weak" are sometimes hard to define.

Sometimes you only use these terms when comparing two scatter plots

Which correlation is stronger?



These are both pretty strong positive correlations but given the trend lines drawn it appears Graph A is a little stronger.