

Section 2.3/2.4 – Scatter Plots

MPM1D

_____ : a variable that affects the value of another variable

_____ : a variable that is affected by some other variable

Example:

Independent - time spent practicing free throws

Dependent - free throw percentage in games

Your free throw percentage ***depends on*** the amount of time you spend practicing free throws.

1)

# of Hours John Studies	John's Test Score
0	75
.5	80
1	85
1.5	90
2	95
2.5	100

Independent Variable:

Dependent Variable:

How are they related?

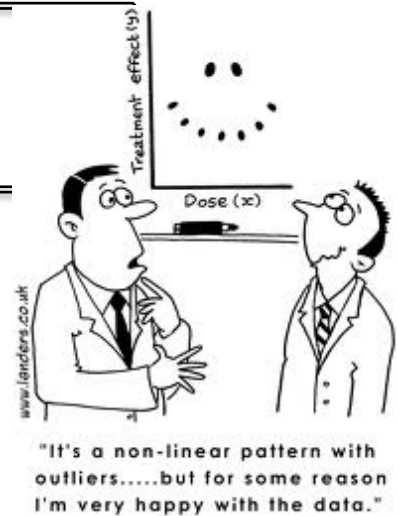
2)

Number of Guests	Meal Preparation Time (min)
3	25
4	33
5	41
6	49
7	57
8	65

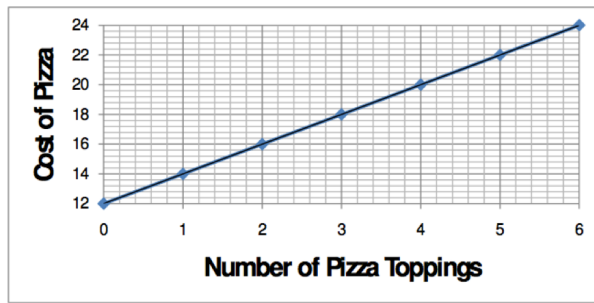
Independent Variable:

Dependent Variable:

How are they related?



3)



Independent Variable:

Dependent Variable:

How are they related?

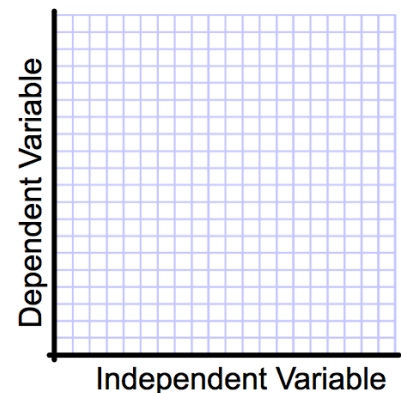
4) Now fill in the following the chart using your understanding of each type of variable:

Independent Variable	Dependent Variable
Number of gallons in your gas tank	
	Your IQ
Number of calories you eat each day	
	Your level of happiness
Number of hours you study for a test	




Part 2: Scatter Plots

A **Scatter plot** is a graph that shows the _____ between two variables.

The Independent variable goes on the horizontal (x) axis, and the dependent variable goes on the vertical (y) axis.



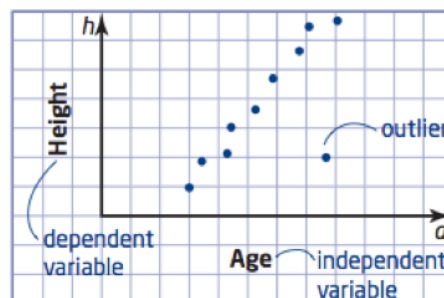
Types of Correlations:

	<p>A scatter plot shows a _____ correlation when the pattern rises up to the right.</p> <p><i>This means that the two quantities increase together.</i></p>
	<p>A scatter plot shows a _____ correlation when the pattern falls down to the right.</p> <p><i>This means that as one quantity increases the other decreases.</i></p>
	<p>A scatter plot shows _____ correlation when no pattern appears.</p> <p><i>Hint:</i> <u>If the points are roughly enclosed by a circle, then there is no correlation.</u></p>

Correlations can also be _____ or _____ depending on how close or spread out the points on the scatter plot are.

Define an outlier:

When should you include an outlier in your data set?

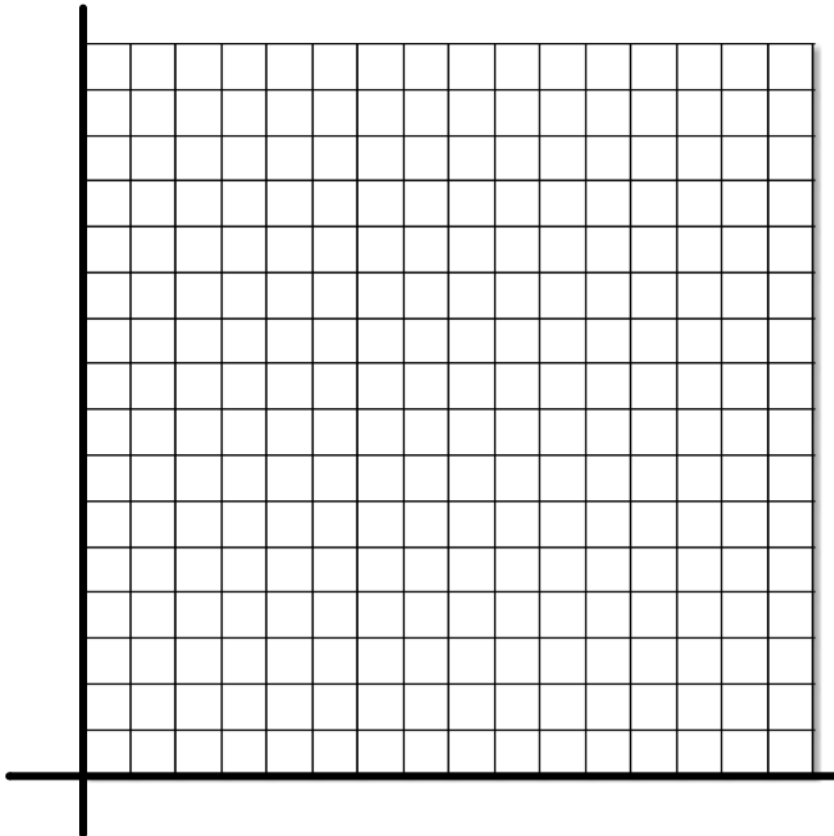
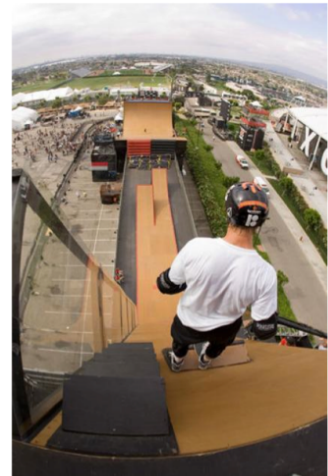


When shouldn't you?

Make a Scatter Plot

5) A skateboarder starts from various points along a steep ramp and coasts to the bottom. This table lists the initial height and his speed at the bottom of the ramp.

Initial Height (m)	2.0	2.7	3.4	3.8	4.0	4.5	4.7	5.0
Speed (m/s)	4.4	5.2	5.8	6.1	4.5	6.5	6.6	6.9



Independent Variable:

Dependent Variable:

Describe the relationship:

Are there any outliers? If so what are possible reasons for the outlier?

Part 3: Line of Best Fit

A line of best fit can help you see the relationship between variables and also to make interpolations and extrapolations.

Properties of a line of best fit:

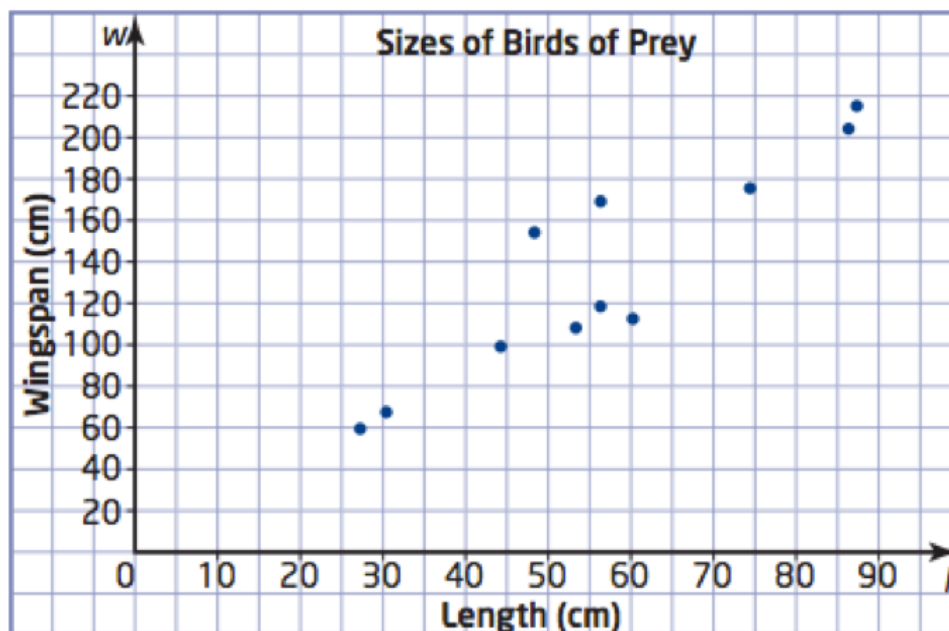
1.

2.

Interpolation:

Extrapolation:

Practice drawing a line of best fit:



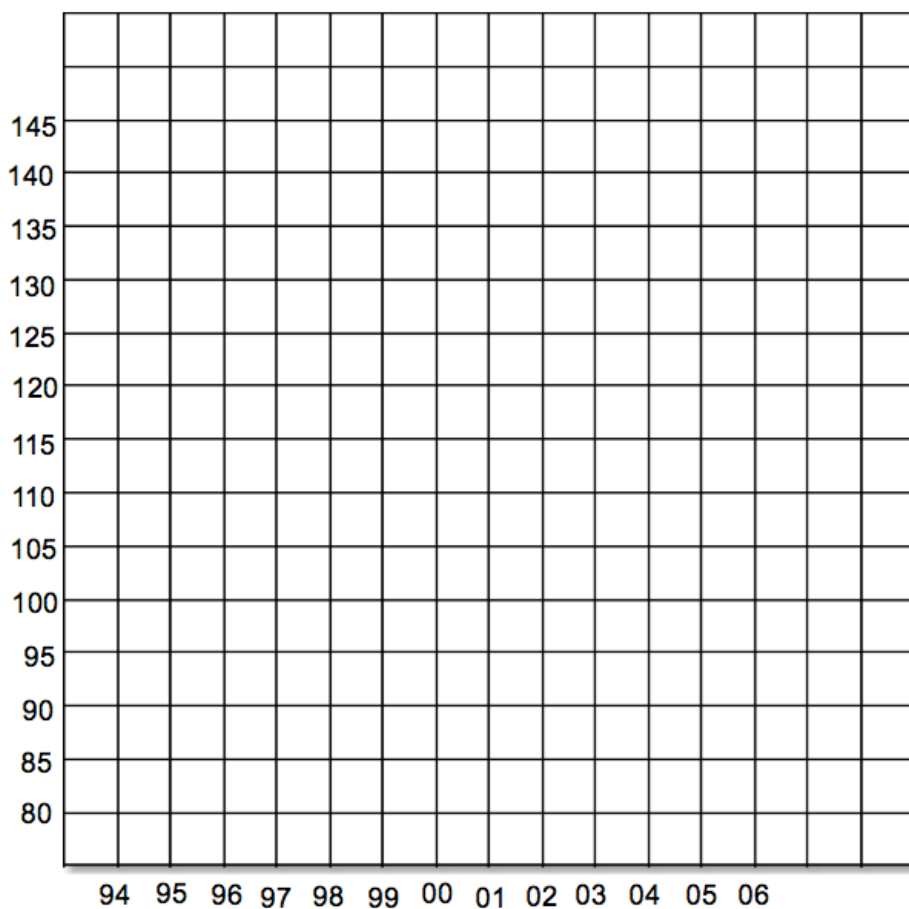
6) This table shows the number of paid movie admissions in Canada for 12-month periods.

Fiscal Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Attendance (millions)	83.8	87.3	91.3	99.1	111.6	119.3	119.3	no data	125.4	119.6

Independent Variable:

Dependent Variable:

Graph the data and draw a line of best fit:



Describe the correlation:

There is no data for 2001, estimate the movie attendance for this year using your line of best fit?

Did you use interpolation or extrapolation to estimate this data?

Estimate the movie attendance for 2005 by extending your line of best fit:

Did you use interpolation or extrapolation to estimate this data?