

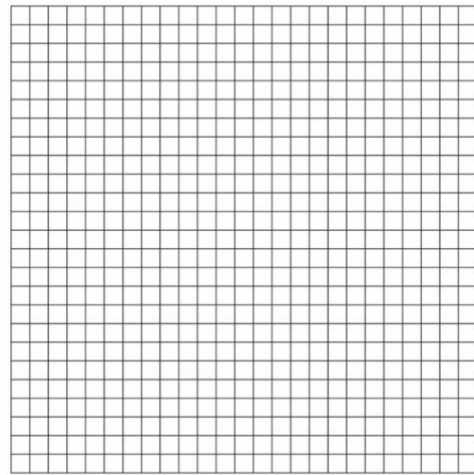
MPM 1D Handout
2.5 Linear and Non-Linear Relationships

Date:

Name:

- Please use a ruler to create your axes, and plan ahead when choosing your scale!
- Refer to your notes to ensure that you are using vocabulary correctly.
- Answer explanation questions clearly. This is practice for assessments!
- Most of the questions are from p. 83 - 87 in your text – the handout was just to provide you with grids, but you can use your text to check answers (or my solutions on the board)

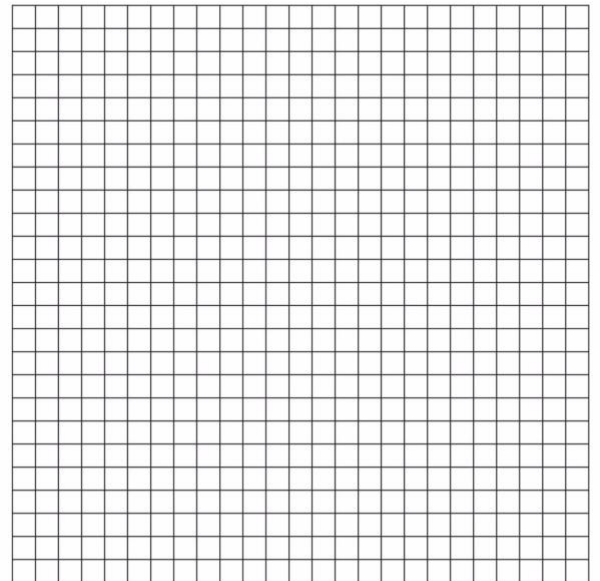
1. Complete p. 83 #1 – 3 and 11 here. A grid has been provided for number 2 if you'd like to use it.



2. A weather balloon recorded air temperature at various altitudes.

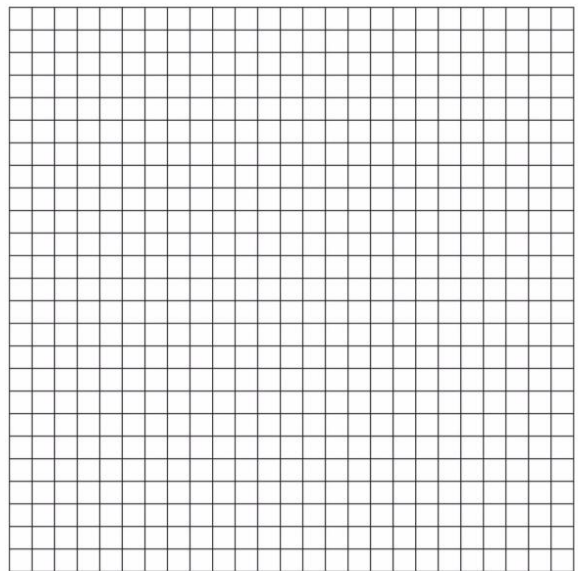
Altitude (m)	Temperature (°C)
500	16.2
800	14.5
1000	13.1
1500	11.2
1700	9.8
2100	8.1

- a. Make a scatter plot of the data.
- b. Describe the relation and draw a line or curve of best fit.
- c. Use your line or curve of best fit to estimate the temperature at an altitude of 600m. Did you interpolate or extrapolate?



- d. Use your line or curve of best fit to estimate the temperature at 2500 m. Did you interpolate or extrapolate?
 - e. Is the correlation between altitude and temperature strong or weak? Positive or negative?
 - f. Which variable is dependent? Independent?
3. This table lists the speed of a skydiver during the first 4 seconds of free fall. Plot the data on a grid with time from 0 s to 12 s on the horizontal axis and speed from 0 m/s to 100 m/s on the vertical axis.

Time (s)	Speed (m/s)
0	0
1	6
2	12
3	18
4	23

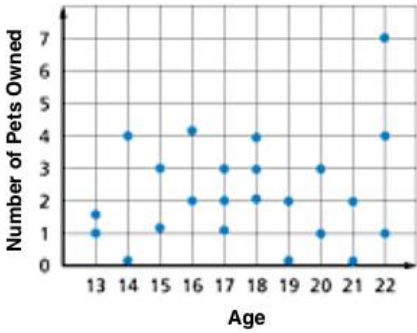


- a. Extrapolate to estimate the skydiver's speed after 12 s of free fall.
- b. This table gives the actual speed for the next 8 seconds of free fall. Add these points to the graph you made.

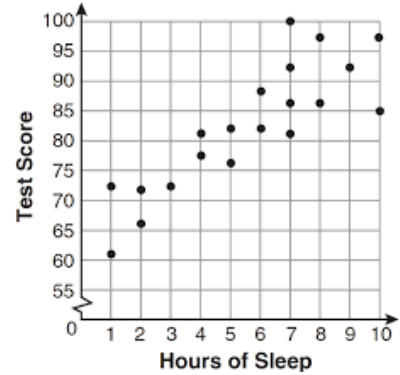
Time (s)	Speed (m/s)
5	28
6	33
7	37
8	40
9	42
10	43
11	43
12	43

- c. Describe the trend in the bigger set of data.
- d. Explain why extrapolating can be inaccurate.

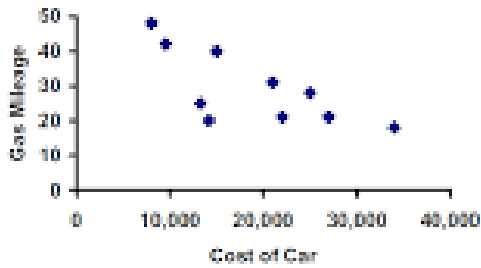
4. Examine the scatter plot provided. Is there a correlation between the data? Explain your thinking.



5. Use the scatter plots provided to draw a line of best fit for each relationship. What type of correlation exists between the data (strong/weak, positive/negative)?



Chevy Cars



6. Use the scatter plot to draw a curve of best fit. Describe the relationship between jaw bone length and age, and explain why this makes sense.

