Graphing Skills

Independent variable - recorded on the X-axis, most common one is time in physics.

Dependent variable - recorded on the Y-axis.

Very Important Math 10 Review

Linear graphs - shows a relation between Y and X variables, Y increases as a multiple of X. The equation of the line is in the form $y = mx + b$, where m is the slope of the line and b is the y-intercept. Ex. - $y = 3x + 2$

Exponential graphs - shows a relation between Y and X variables, Y increases as a multiple of $x^{exponent}$. The equation of the line is in the form $y = ax^2 + b$, where a is a constant and b is the y-intercept. Ex. - $y = 3x^2$

Inverse graphs - show a relation between Y and X variables, Y increases as a multiple of $\frac{1}{x}$. The equation of the line is in the form $y = a\frac{1}{x} + b$, where a is a constant and b is the y-intercept. Ex. - $y = \frac{1}{x} + 2$

For linear graphs - slope shows the direct relationship between the Y and X variables.

For all graphs - Y-intercept shows the initial value of the dependant variable.

Plotting - putting dots on a graph.

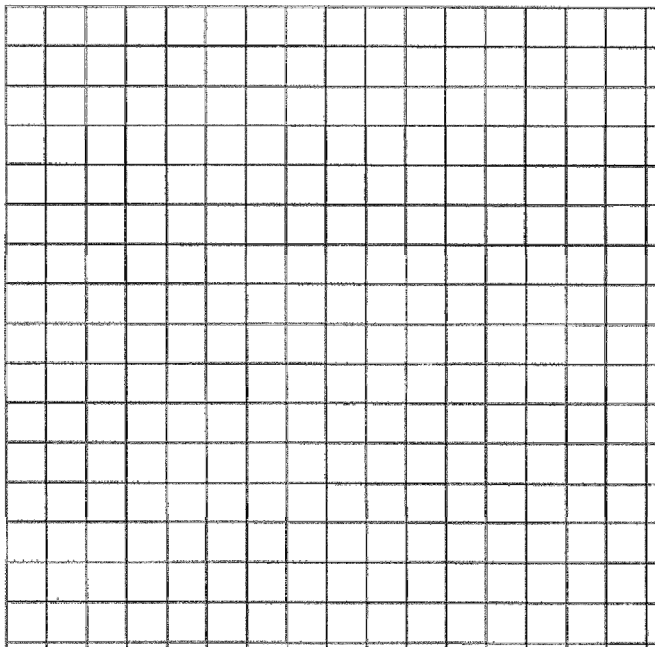
Graphing - drawing in the approximate curve that goes close to all data points (a line IS a type of a curve!)

When your graph is a line, expect to be finding the slope!

Part I

1.) Plot the following data:

$Time\ (s)$	$Distance\ (m)$
0	2.0
1	4.1
2	6.0
3	7.9
4	9.9
5	12.0
6	14.1
7	16.0
8	18.2



2.) Graph the data

WHEN GRAPHING THE DATA, DRAW A CURVE THAT GOES CLOSE TO (BUT NOT NECESSARILY THROUGH) ALL DATA POINTS. This is called 'the line of best fit' or curve fitting.

3.) Describe the relationship (between the Y-variable [distance] and the X-variable [time])

4.) What is the slope?

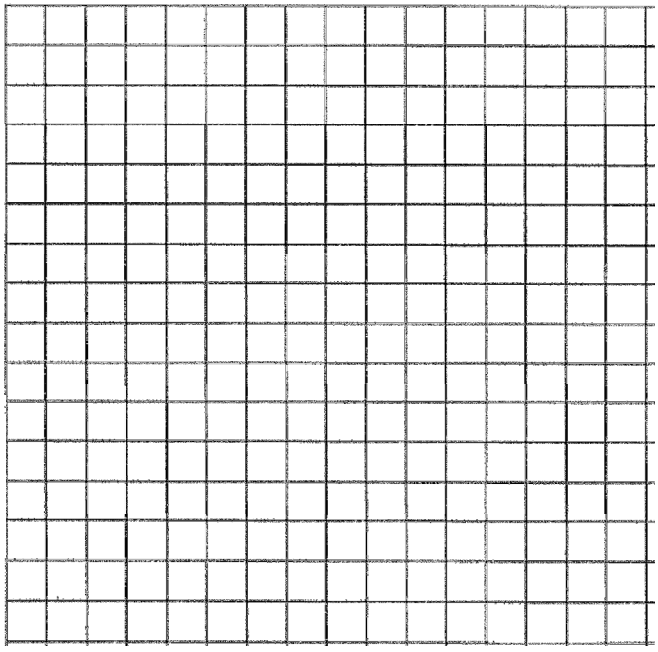
5.) What are the units of the slope?

6.) What was the initial value?

Part II

1.) Plot the following data:

$Time\ (s)$	$velocity\ (\frac{m}{s})$
0	16
1	12
2	7.2
3	4.0
4	− 0.1
5	− 4.0
6	− 8.0
7	− 12
8	− 16



2.) Graph the data.

3.) Describe the relationship (between the Y-variable [velocity] and the X-variable [time]).

4.) What is the slope?

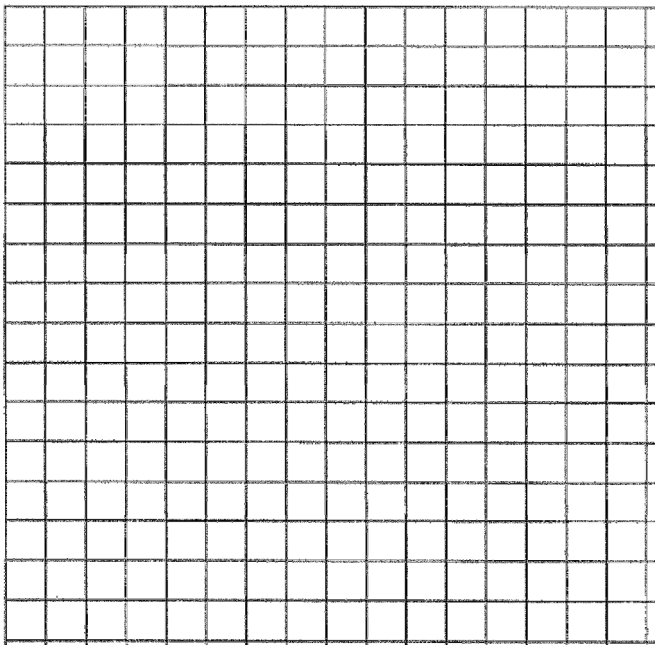
5.) What are the units of the slope?

6.) What was the initial value?

Part III

1.) Plot the following data:

$Time\ (s)$	$Distance\ (m)$
0	0
1	1.0
2	4.1
3	9.0
4	16.2
5	24.8
6	36.3



2.) Graph the data.

3.) Describe the relationship (between the Y-variable [distance] and the X-variable [time]).

4.) What is the initial value?

5.) Determine an equation for the relationship, it should be of the form: $d = constant\ number \times t^{exponent}$

6.) How would the graph look different if the equation were $d = t^2 + 3$?