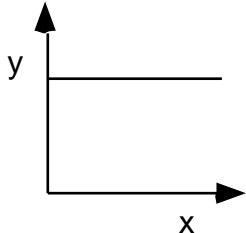
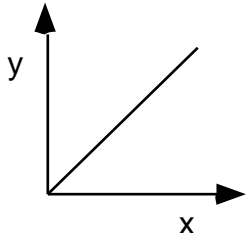
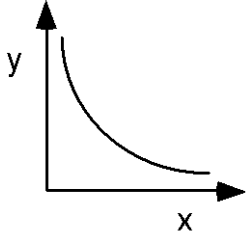
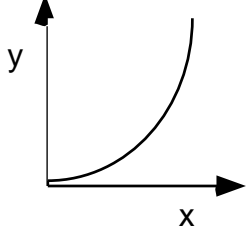
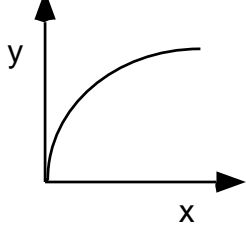


## Graphical Methods-Summary

A graph is one of the most effective representations of the relationship between two variables. The independent variable (one controlled by the experimenter) is usually placed on the x-axis. The dependent variable (one that responds to changes in the independent variable) is usually placed on the y-axis. It is important for you to be able interpret a graphical relationship and express it in a written statement and by means of an algebraic expression.

Graph shape	Written relationship	Modification required to linearize graph	Algebraic representation
	<p>As x increases, y remains the same.</p> <p>There is <b>no relationship</b> between the variables.</p> <p><b>No Relationship</b></p> <p>Logger Pro – Linear Excel – Linear</p>	None	$y = b$ , or y is constant
	<p>As x increases, y increases proportionally.</p> <p>Y is <b>directly proportional</b> to x.</p> <p><b>Directly proportional</b></p> <p>Logger Pro – Linear Excel – Linear</p>	None	$y = mx + b$
	<p>As x increases, y decreases.</p> <p>Y is <b>inversely proportional</b> to x.</p> <p><b>Inversely proportional</b></p> <p>Logger Pro – N<sup>th</sup> Inverse; N=1 Excel – Cannot be adequately represented</p>	Graph y vs $\frac{1}{x}$ , or y vs $x^{-1}$	$y = m\left(\frac{1}{x}\right) + b$
	<p>Y is proportional to the square of x.</p> <p><b>x<sup>2</sup> Relationship</b></p> <p>Logger Pro – Quadratic Excel – Polynomial of 2<sup>nd</sup> order</p>	Graph y vs $x^2$	$y = mx^2 + b$
	<p>The square of y is proportional to x.</p> <p><b>y<sup>2</sup> Relationship</b></p> <p>Logger Pro – Power Excel – Power</p>	Graph $y^2$ vs x	$y^2 = mx + b$

When you state the relationship, tell how y depends on x ( e.g., as x increases, y ...)