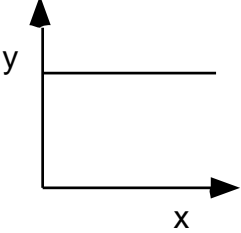
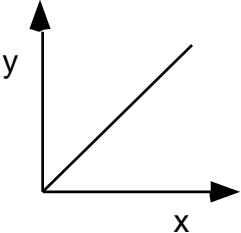
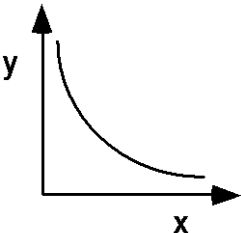
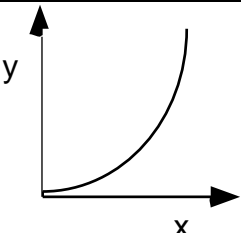
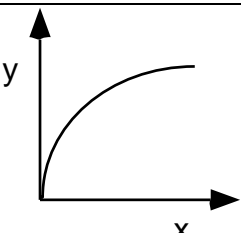


Graphical Methods-Summary

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
	As x increases, y remains the same. There is no relationship between the variables. “No relationship”	None	$y = b$, or y is constant
	As x increases, y increases proportionally. Y is directly proportional to x. “Linear function”	None	$y = mx + b$
	As x increases, y decreases. Y is inversely proportional to x. “Inverse function”	Graph y vs $\frac{1}{x}$, or y vs x^{-1}	$y = m\left(\frac{1}{x}\right) + b$
	Y is proportional to the square of x. “Quadratic or Parabolic function.”	Graph y vs x^2	$y = mx^2 + b$
	The square of y is proportional to x. “Square root function”	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 ...), and describe how the rate of change changes.