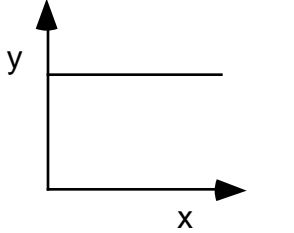
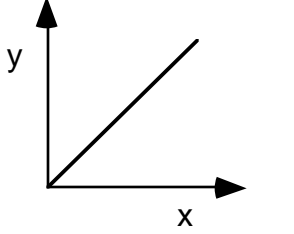
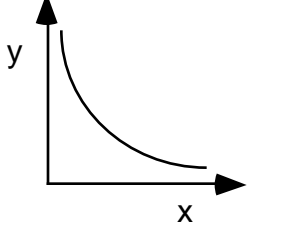
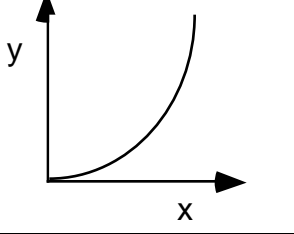
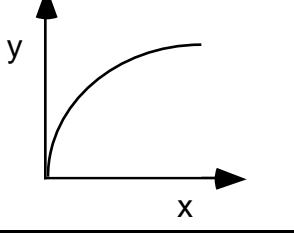


Graphical Methods-Summary

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. | None | $y = b$, or y is constant |
|  | As x increases, y increases proportionally. Y is directly proportional to x. | None | $y = mx + b$ |
|  | As x increases, y decreases. Y is inversely proportional to x. | 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. | Graph y vs x^2 | $y = mx^2 + b$ |
|  | The square of y is proportional to x. | 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).