

Math Application

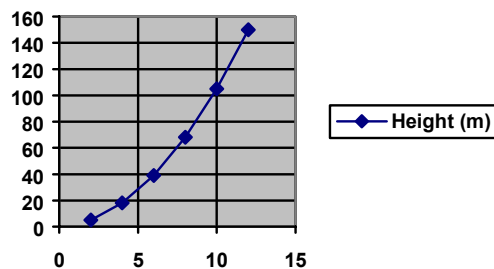
Graphing

Drawing scientific graphs is an art. Like any other art, it takes practice to become skilled at demonstrating the meaning behind data collected in an experiment. A poorly drawn graph may be more of an enigma than the original data from which it was created. It may mislead the reader into believing events were more significant or more insignificant than was actually the case. A well-drawn graph clarifies observations made in the laboratory, so that the results of the experiment may be appreciated visually.

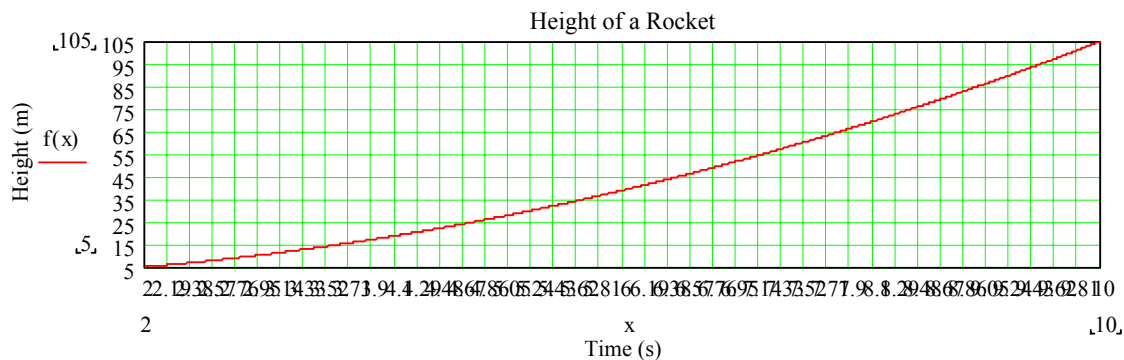
Regardless of the type of graph you intend to draw, all graphs comparing two sets of data (e.g. X and Y) have certain elements in common.

- title
- labeled axes
- labeled intervals

Here's an example of a poorly drawn graph from Microsoft Word. The graph represents the height of an accelerating rocket with respect to time. Many students might believe that this graph is good because it is computer generated, but it is too busy due to the overuse of interval labeling, and is missing a title and axes labels. Also note that the data points have been connected by straight lines, which should be avoided--always connect graphed points with the smoothest possible *line of best fit*.



The following graph drawn in MathCad (using same data) is better, but it distorts the picture, making it seem like it took a long time for the rocket to achieve its final height, and here again the intervals are labeled too frequently, making this graph a mess to read.



Finally, if given an entire piece of graph paper, don't try to use the whole page as your graph. Like the graph above, yours will be distorted. Instead, consider your range (the y values) and domain (x-values) and size your graph to fit so that it is square like the first graph above and well-labeled with a smooth *line of best fit* like the second.