MATH 160 Session 4

Some special functions:

A function defined by a rule of the form $f(x) = mx + b$ where m and b are constants is a ***linear function***.

A function defined by a rule of the form $f(x) = ax^2 + bx + c$ where a, b, and c are constants and $a \neq 0$ is callled a ***quadratic***, or ***second degree***, function.

A function defined by a rule of the form $f(x) = a_n x^n + a_{n-1}x^{n-1} + \ldots + a_2x^2 + a_1x^1 + a_0$ where each a_i is a constant and $a_n \neq 0$ is called a ***polynomial fuinction of degree n***.

1. Sketch a graph of each of these quadratic functions on the same pair of axes.

   a. $f(x) = x^2$ b. $g(x) = 2x^2$ c. $h(x) = 3x^2$ d. $j(x) = 0.5x^2$

   e. $k(x) = -x^2$ f. $m(x) = -2x^2$ g. $n(x) = -3x^2$ h. $p(x) = -0.5x^2$