Lesson 6.2: Evaluating and Graphing Polynomial Functions

Polynomial Function: a function of the form $f(x) = ax^n + bx^{n-1} + \cdots + k$ where $n =$ any whole number (positives)

- Standard Form:
- Leading Coefficient:
- Constant term:
- Degree:

  0 →

  1 →

  2 →

  3 →

  4 →

Example1 :

Decide whether the function is a polynomial function. If it is, write the function in standard form and state it degree, type, and leading coefficient.

a. $f(x) = 2x^2 - x^{-2}$

Function: _____ Degree: _____

Standard form: _____ Type: _____

Leading Coefficient: _____

b. $f(x) = -.8x^3 + x^4 - 5$

Function: _____ Degree: _____

Standard form: _____ Type: _____

Leading Coefficient: _____

c. $f(x) = \frac{1}{2}x^2 - 3x^3 - 7$

Function: _____

Degree: _____

Standard form: _____

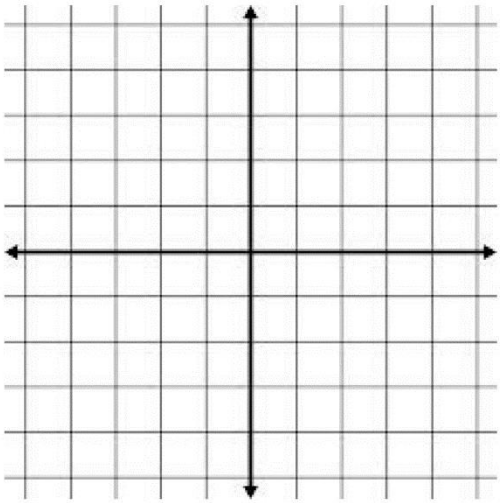
Type: _____

Leading Coefficient: _____

Example 2:

Graph the following:

$-x^4 - 2x^3 + 2x^2 + 4x$



x-intercept(s): _____

y-intercept(s): _____

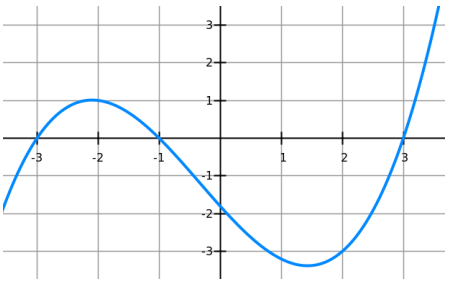
maximum(s): _____

minimum(s): _____

Degree: _____

Lesson 6.8/9: Graphing Polynomial Functions

Turning point: Change in the graph $n - 1$



Local Maximum: highest point relative to surrounding points

Local Minimum: lowest point relative to surrounding points

Example 1: Graph each function below. List the intercepts, maximums and minimums

a. Graph $f(x) = -(x-1)(x+2)(x-3)$

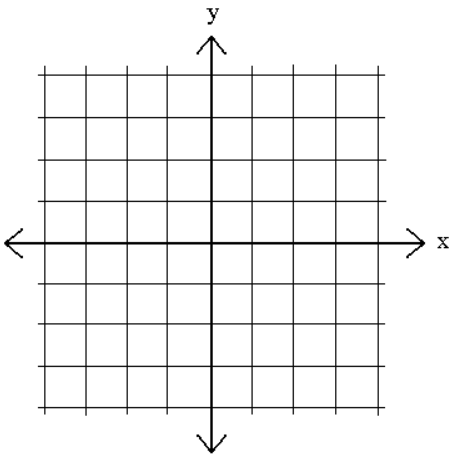
x-intercepts:

Maximum:

Minimum:

y-intercept:

degree:



b. Graph $f(x) = x^3 - 2x$

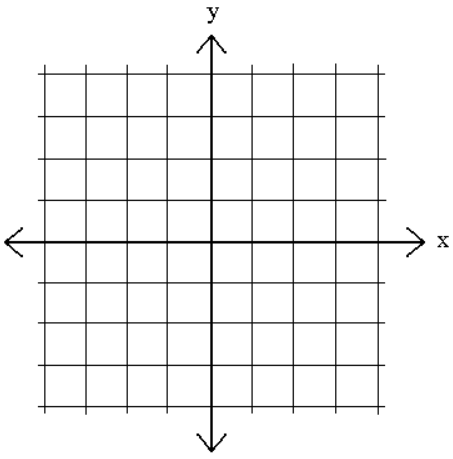
x-intercepts:

Maximum:

Minimum:

y-intercept:

degree:



Example 2: Write an equation for the graph below.