Name (classify) each polynomial by its degree.

1. $4x^2 - 8x$

   Quadratic

2. $y = 7 + 9x$

   Linear

3. $y = (2x + 3)^2(x - 1)$

   Cubic

4. $y = 7x + 2 - 8x - 2 + x$

   simplify:
   $y = 0$

   Constant

Name (classify) each polynomial by the number of terms.

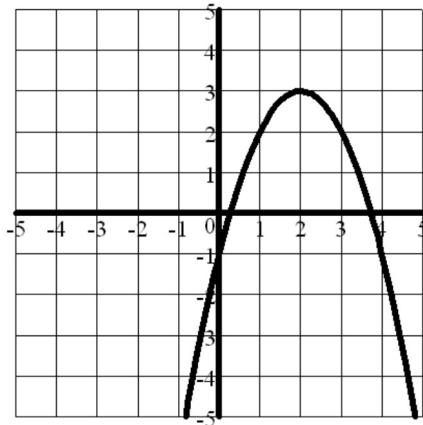1. $7x^3$

   Monomial

2. $y = 12$

   Monomial

3. $y = 6x^2 - 1$
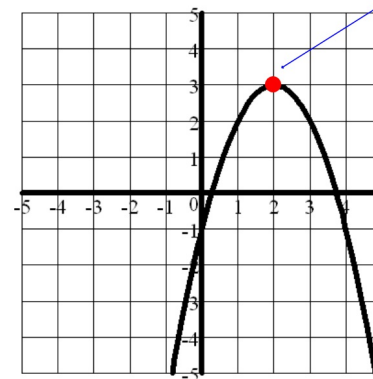
   Binomial

4. $y = (x + 8)(x - 3)$

   Trinomial

Notes
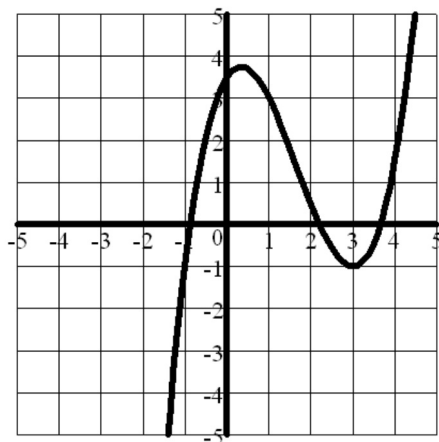
What is the maximum of this function?

3

What is the minimum of this function?

It has none

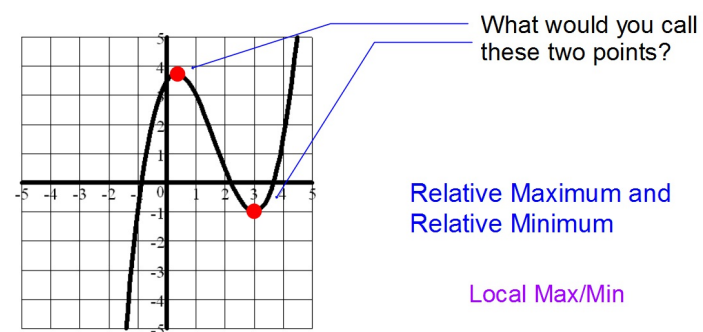
This point is called the Absolute Maximum of the function.

What is the Absolute Maximum of this function?

It has none

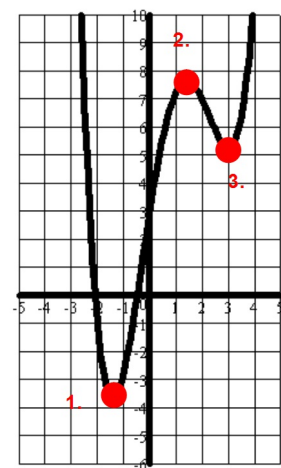What is the Absolute Minimum of this function?

It has none

What would you call these two points?

Relative Maximum and Relative Minimum

Local Max/Min

Together, Maximums and Minimums are called EXTREMA

What name would you give to each of these points?

1. Absolute Minimum

2. Relative Maximum

3. Relative Minimum

Absolute Maximum   and   **Absolute Minimum**
The largest value of the function over the entire graph.

The smallest value of the function over the entire graph.

Relative Maximum   and   **Relative Minimum**
The largest value of a function in a given area of the graph

The smallest value of a function in a given area of the graph

Find all Absolute and Relative Extrema for this function (use a standard window):

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

Absolute Min: -7.23

Relative Min: 1.71

Relative Max: 3.08

2ND TRACE
use options

3: minimum
and
4: maximum

Find all Absolute and Relative Extrema for this function (use a standard window):

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

Absolute Min: There is none

Relative Min: -1.88

Relative Max: 5.06

Finding zeros of a function:

Zeros of a function are x-intecepts of the graph.

Finding zeros of a function with the graphing calculator:

Method 1: Finding ZEROS

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

Use the option on the graphing calculator to find zeros:
2ND TRACE
2: zero

zeros are: -2.81 , -1

Zeros of a function are the values of x when y = 0.

Method 2: Finding Intersections

$$0 = x^4 + 2x^3 - 3x^2 - x + 3$$

Graph $Y_1 = x^4 + 2x^3 - 3x^2 - x + 3$
and $Y_2 = 0$

use the option on the graphing calculator
to find points of intersection.
2ND TRACE
5: intersect

zeros are: -2.81 , -1