Vertex Form of a Quadratic: $y = a(x - h)^2 + k$

Like Quadratics (which by the way is a Polynomial)

Polynomial equations also have an **a**.

EQ of a polynomial in factored form:

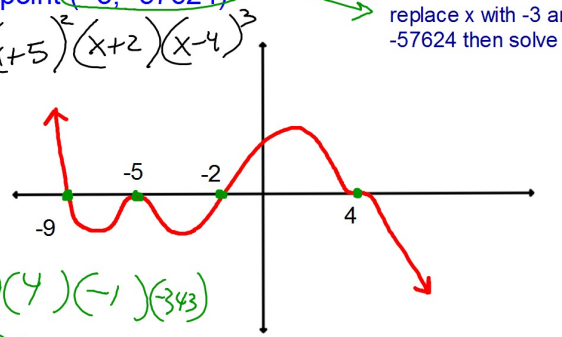
$f(x) = a(x - h)^n(x - j)^m(x - k)^p$.....

How do you find a? You need one more piece of information

Write the exact equation of this Polynomial given the polynomial passes through the point (-3, -57624)

replace x with -3 and y with -57624 then solve for a.

$y = -7(x+9)(x+5)^2(x+2)(x-4)^3$



$y = a(6)(4)(-1)(-343)$

$-57624 = 8232a$

$-7 = a$

Write a possible equation of a polynomial with the given zeros.
Give your answer in Standard Form.
Zeros are 5(single zero) and -2(double zero)

$y = (x-5)(x+2)^2$

$(x-5)(x^2+4x+4)$

	x^2	$+4x$	$+4$
x	x^3	$+4x^2$	$+4x$
-5	$-5x^2$	$-20x$	-20

$y = x^3 - x^2 - 16x - 20$

Write the exact equation of a polynomial with the given zeros. Give your answer in Factored Form.
Single zeros are 1,- 4, 2 The point (-3, 200) is on the graph.

$y = a(x-1)(x+4)(x-2)$

$200 = a(-3-1)(-3+4)(-3-2)$

$200 = a(-4)(1)(-5)$

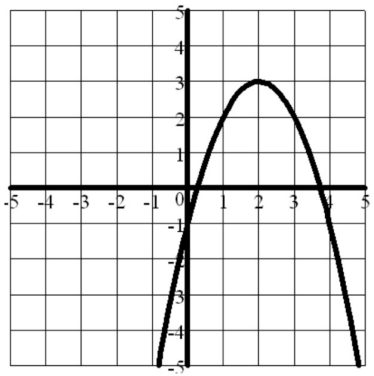
$\frac{200}{20} = \frac{20a}{20}$ $a = 10$

$y = 10(x-1)(x+4)(x-2)$

You can now finish Hwk #26

Practice Sheet Sec 6-2

Due Monday



What is the maximum of this function?

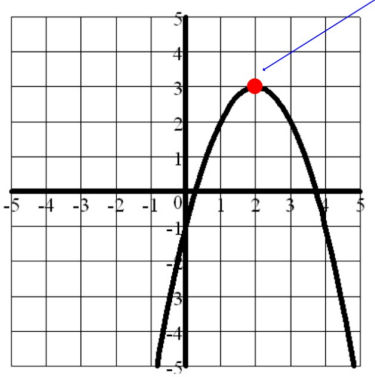
3

When does this maximum occur?

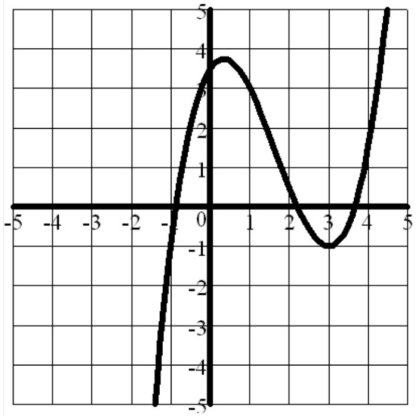
when x = 2

What is the minimum of this function?

It has none



This point is called the Absolute Maximum of the function.

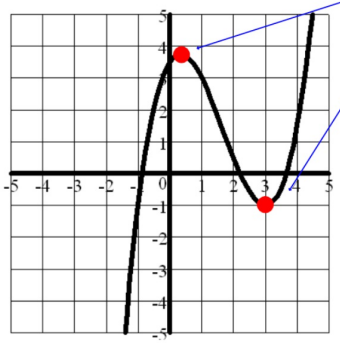


What is the Absolute Maximum of this function?

It has none

What is the Absolute Minimum of this function?

It has none

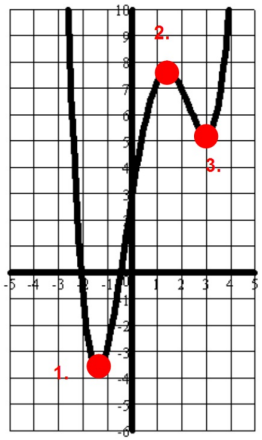


What would you call these two points?

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

Finding a max or a min with the graphing calculator.

Find the coordinates of the absolute Max of this quadratic:

$y = -1.37x^2 + 11.63x - 18$

Using a graphing calculator press 2ND TRACE

then choose option 4:maximum

Left Bound? tells you to move to the left side of the max, then press ENTER.
Right Bound? tells you to move to the right side of the max, then press ENTER.
Guess? tells you to move closer to the maximum, then press ENTER.

the maximum is: (5.15,5.55) rounded to the nearest hundredth

Find the coordinates of all Absolute and Relative Extrema for the function below:

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

Use a graphing calculator and 2ND TRACE

Absolute Max: NONE

Absolute Min: (−2.14, −7.23)

Relative Max: (−.15, 3.08)

Relative Min: (.79, 1.71)