Write the only equation of this polynomial that passes through the point $(1, 7372800)$
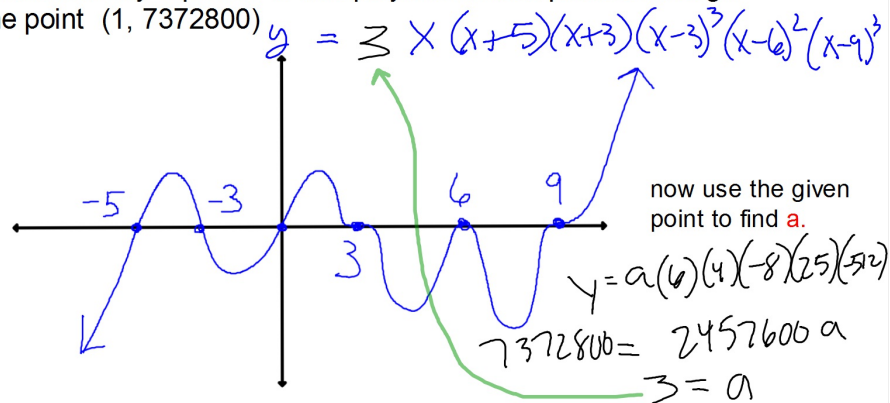
$$y = 3 \cdot x(x+5)(x+3)(x-3)^3(x-6)^2(x-9)^3$$

now use the given point to find a.

$$y = a(6)(4)(-8)^3(25)(-512)$$
$$7372800 = 2457600\,a$$
$$3 = a$$

Write the equation of a polynomial with the given zeros. Give your answer in Standard Form.
Zeros are 3 and ±7   These are all single zeros.

$$y = (x-3)(x+7)(x-7)$$
$$y = (x^2 + 4x - 21)(x-7)$$
$$\boxed{y = x^3 - 3x^2 - 49x + 147}$$

×		−3
x	x^2	−3x
+7	27x	−21

	x^2	+4x	−21
x	x^3	−4x²	21x
−7	−7x²	−28x	147

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

$$y = (x-5)(x+2)^2$$
$$= (x-5)(x^2 + 4x + 4) \longrightarrow$$
$$\boxed{y = x^3 - x^2 - 16x - 20}$$

×	x^2	+4x	+4
x	x^3	+4x²	+4x
−5	−5x²	−20x	−20

Write the equation of a polynomial with the given zeros. Give your answer in Factored Form with the proper value of a.
Zeros are 1, - 4, 2   The point (-3, 200) is on the graph.
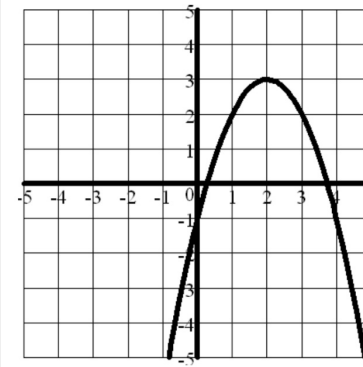
$$y = a(x-1)(x+4)(x-2)$$
$$= a(-4)(1)(-5)$$
$$200 = 20a$$
$$10 = a$$
$$\boxed{y = 10(x-1)(x+4)(x-2)}$$

Practice Sheet Sec 6-2
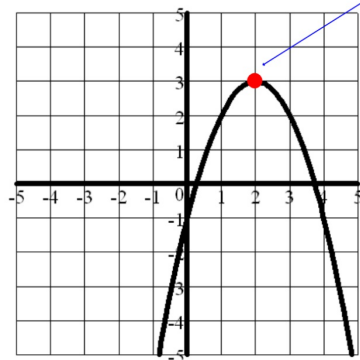

What is the maximum of this function?

3

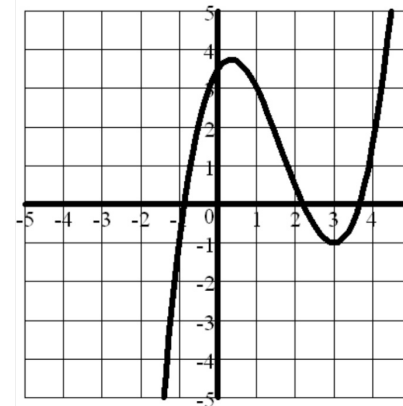When does this maximum occur?

when x = 2

What is the minimum of this function?

It has none

graph goes down forever

This point is called the Absolute Maximum of the function.

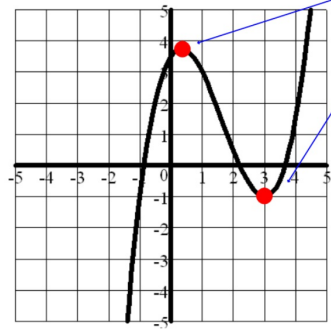
What is the Absolute Maximum of this function?

It has none

Graph goes up forever

What is the Absolute Minimum of this function?
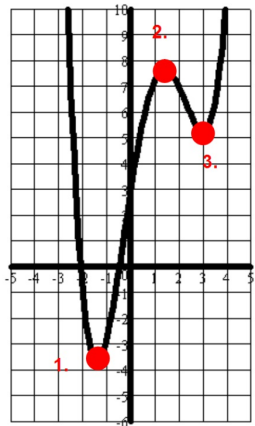
It has none

Graph goes down forever

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   The smallest value of the
function over the   function over the
entire graph.   entire graph.

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