

Name _____

Date _____

We introduced power rule derivative

As a way to find maximum

Advanced Algebra

Unit 5 Polynomials: Assignment #14

1) Re-write the following and show the long division process.

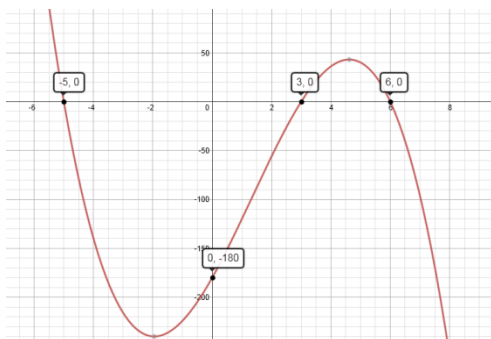
2) Find the Roots of the original polynomial

3) Sketch a graph of the polynomial

1) $x^3 - 5x^2 - 2x + 24 \div (x+2)$	2) $(x^3 - 3x^2 - 16x - 12) \div (x-6)$
3) $(x^3 - 12x^2 + 12x + 80) \div (x-10)$	4) $(x^3 - 18x^2 + 95x - 126) \div (x-9)$
5) $(x^3 - x^2 - 21x + 45) \div (x+5)$	6) $(x^3 - 11x^2 + 14x + 80) \div (x-8)$
7) $(4x^3 - 4x^2 - 9x + 9) \div (x-1)$	8) $(2x^3 + 7x^2 - 33x - 18) \div (x+6)$
9) $(x^3 - 8x^2 + 4x + 48) \div (x-4)$	10) $(2x^3 - 14x^2 - 56x - 40) \div (x-10)$
11) $(6x^3 + 8x^2 + x - 6) \div (3x-2)$	12) $(3x^3 + 22x^2 + 38x + 15) \div (x+5)$

Review: I can write the equation of a polynomial graph.

Write the equation of the following:



Review: I can complete the square:

$$Y = x^2 + 8x - 16$$

$$y = 2x^2 - 6x + 18$$

Review: Equation of Volume of Box given 12 by 18 piece of paper:

What is the equation to represent this volume of an open top box?

Now do the short cut only. Given a 9 by 8 piece of paper,

Write the equation for the open top box

Multiply it out into standard form

Find the derivative

Use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

What is the x that produces the max volume? What is the max volume?