

Day 2 on 2.2

Ex1) Graph and find the zeros of $f(x) = 3x^2 - 12x + 3$ to 3 decimals.



Ex 2) Find a polynomial with the given zeros.

a) $x = 0, 2, 5$

$$(x-0)(x-2)(x-5) = 0$$

$$x(x^2 - 7x + 10) = 0$$

$$f(x) = x^3 - 7x^2 + 10x$$

b) $x = -1/2, 3, 3$

$$(x + \frac{1}{2})(x-3)(x-3)$$

$$(x + \frac{1}{2})(x^2 - 6x + 9)$$

$$x(x^2 - 6x + 9) + \frac{1}{2}(x^2 - 6x + 9)$$

$$x^3 - 6x^2 + 9x + \frac{1}{2}x^2 - 3x + 4\frac{1}{2}$$

$$x^3 - 5\frac{1}{2}x^2 + 6x + 4\frac{1}{2}$$

$$2x^3 - 11x^2 + 12x + 9$$

Ex 3) Sketch the graph. Apply the Leading coefficient test. Find the zeros. Plot sufficient points. Draw the continuous curve.

$f(x) = x^3 - 9x$

Pos odd

$$x^3 - 9x = 0$$

$$x(x^2 - 9) = 0$$

$$x(x+3)(x-3) = 0$$

$$x = 0$$

$$x + 3 = 0$$

$$x = -3$$

$$x - 3 = 0$$

$$x = 3$$

X	Y
-2	10
2	-10

$$f(-2) = (-2)^3 - 9(-2)$$

$$= -8 + 18 = 10$$

