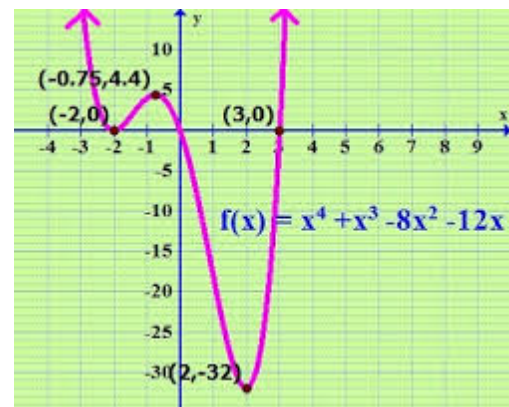


Chapter 2.3 Day 1

I can find the zeros, extrema and end behavior of a polynomial

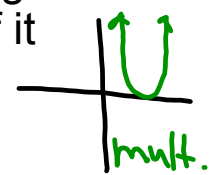


Vocabulary:

Zeros: The solutions to the polynomial. (Where the graph crosses the x-axis)

$$y = 0$$

Multiplicity: The number of times a given polynomial equation has a zero at a given point. (If the graph goes through the point it has an odd number of zeros, if it bounces it will have an even number of zeros.)



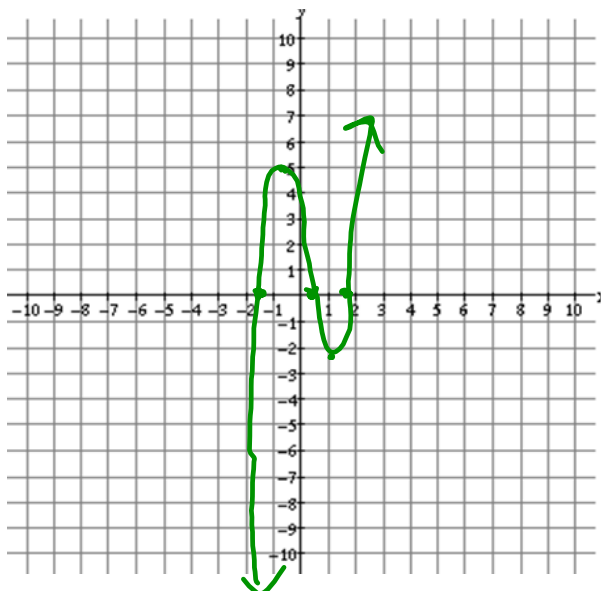
Extrema-

Relative max: The "highest" point(s) on the graph compared to the points around it.

Relative min: The "lowest" point(s) on the graph compared to the points around it.

End behavior: The behavior of the graph as x approaches negative and positive infinity.

1.) $f(x) = 2x^3 - 2x^2 - 5x + 3$

Degree 3Zero(s): $X = -1.4, .5, 1.9$ Relative Max: $(-0.6, 4.9)$ Relative Min: $(1.3, -2.5)$ End Behavior: $x \rightarrow \infty$ $f(x) \rightarrow \infty$
 $x \rightarrow -\infty$ $f(x) \rightarrow -\infty$ Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$ 

2.) $f(x) = -\frac{1}{4}x^4 + 2x^2 - 4$

Degree 4Zero(s): $X = -2$ mult 2, 2 mult 2Relative Max: $(-2, 0)$, $(2, 0)$
OR: $x = -2, -2, 2, 2$ Relative Min: $(0, -4)$ End Behavior: $x \rightarrow \infty$ $f(x) \rightarrow -\infty$
 $x \rightarrow -\infty$ $f(x) \rightarrow -\infty$ Domain: $(-\infty, \infty)$ Range: $[0, -\infty)$ 