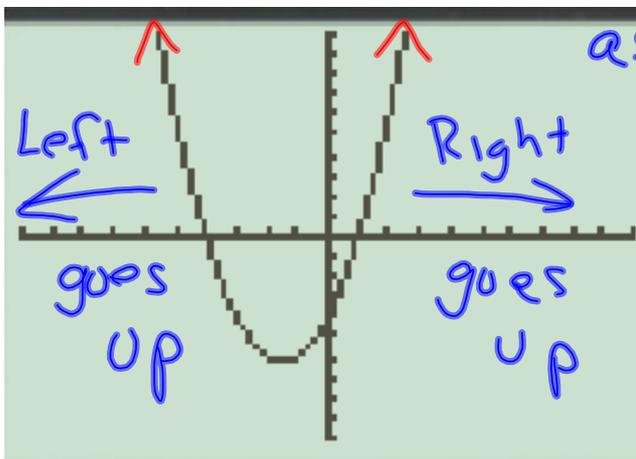Important Info from graphs

1) x - y Intercepts

2) End Behavior

3) Min and Max points

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$f(x) = x^2 + 3x - 4$

degree $\Rightarrow$ 2

Leading Coefficient $\Rightarrow$ 1

(Left)          (up)

as $x \rightarrow -\infty$ $f(x) \rightarrow \infty$

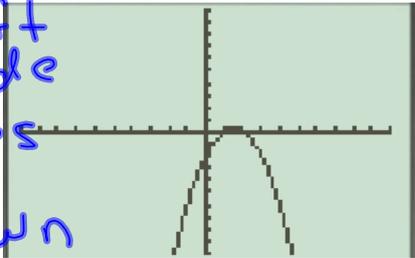$x \rightarrow +\infty$ $f(x) \rightarrow \infty$
(right)          (up)

Left $\longleftarrow$        Right $\longrightarrow$

goes Up          goes Up

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

degree $\Rightarrow$ 2

L. C. $\rightarrow$ -1

Left side goes down

Left Side goes down

$x \rightarrow -\infty$   $f(x) \rightarrow -\infty$

Right side goes down
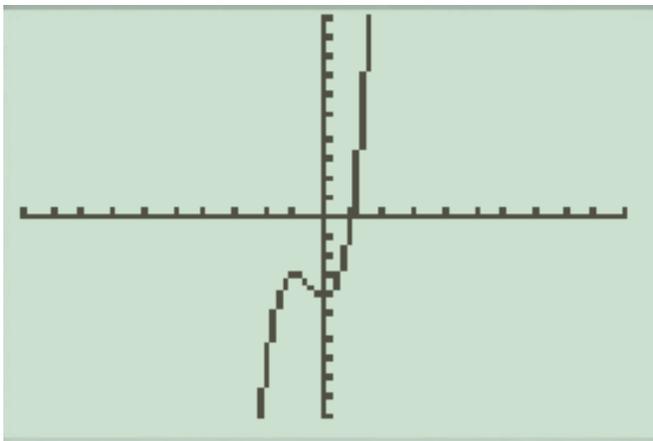
$x \rightarrow \infty$   $f(x) \rightarrow -\infty$

$$f(x) = 2x^3 - 3x^2 + 2x - 4$$

degree $\Rightarrow$ 3

L. C. $\Rightarrow$ 2

Left side  down

$x \rightarrow -\infty$   $f(x) \rightarrow -\infty$

Right side  UP

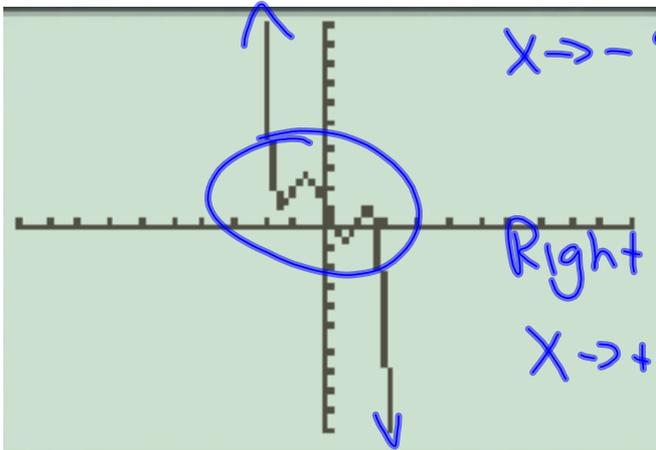$x \rightarrow +\infty$   $f(x) \rightarrow +\infty$

$$f(x) = -x^5 + 4x^3 - 4x + 1$$

degree $\Rightarrow$ 5

L. C. $\Rightarrow$ -1

Left side goes up

$x \Rightarrow -\infty \quad f(x) \Rightarrow +\infty$

Right side goes down

$x \Rightarrow +\infty \quad f(x) \Rightarrow -\infty$

1) Find Leading Coefficient
$\Rightarrow$ positive or negative

2) Find Degree $\Leftarrow$ odd or even

If positive $\quad x \rightarrow \infty$ (right side) goes up

If negative $\quad x \rightarrow \infty$ (right side) goes down

If even $\quad x \Rightarrow -\infty$ goes same
$\qquad x \Rightarrow \infty$ direction

If odd $\quad x \Rightarrow -\infty$ goes opposite
$\qquad x \Rightarrow \infty$ directions

$$f(x) = -\frac{1}{2}x^7 + 3x^5 - 2x + 1$$

Degree $\rightarrow$ 7 odd

L.C. $\rightarrow$ $-1/2$ negative

Right side    goes down

$x \rightarrow +\infty$    $f(x) \rightarrow -\infty$

Left side    goes up

$x \rightarrow -\infty$    $f(x) \rightarrow +\infty$