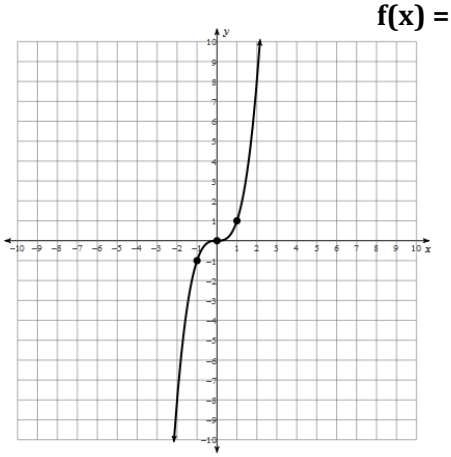
Parent Function: Cubic
$f(x) = x^3$



relative max: none

relative min: none

increasing intervals: $(-\infty, \infty)$

decreasing intervals: none

domain: $(-\infty, \infty)$

range: $(-\infty, \infty)$

end behavior: $x \to \infty$ $f(x) \to \infty$

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

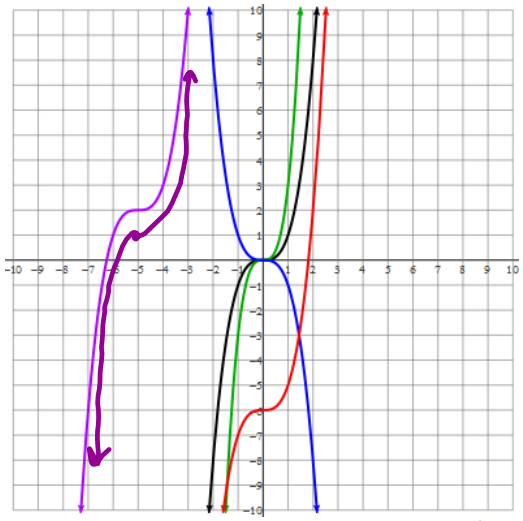
Wednesday 8/24/16

Functions! (continued)

You will need your parent functions book!

Use your calculator and what you know about transformations to work on the front of today's notes!

Notes sheet:



$g(x) = 3x^3$ Stretch Factor: 3

$b(x) = -x^3$ Flipped

$r(x) = x^3 - 6$ down 6

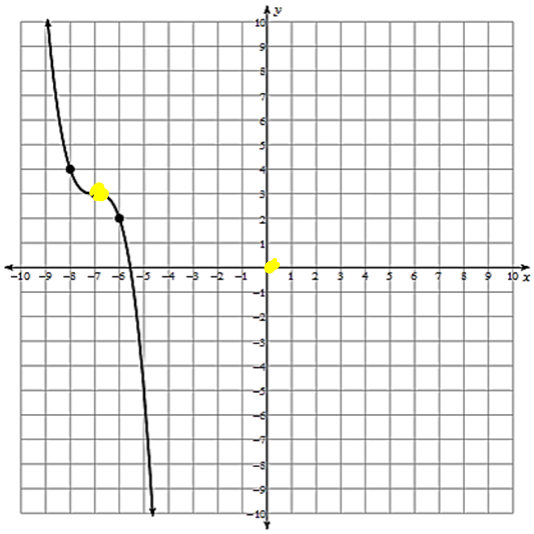
$p(x) = (x+5)^3 + 2$ left 5 up 2

C(x)= flipped stretched (x ± left/right)^3 ± up/down

Parent Funtion: $f(x) = x^3$

Transformations: left 7, up 3, flipped

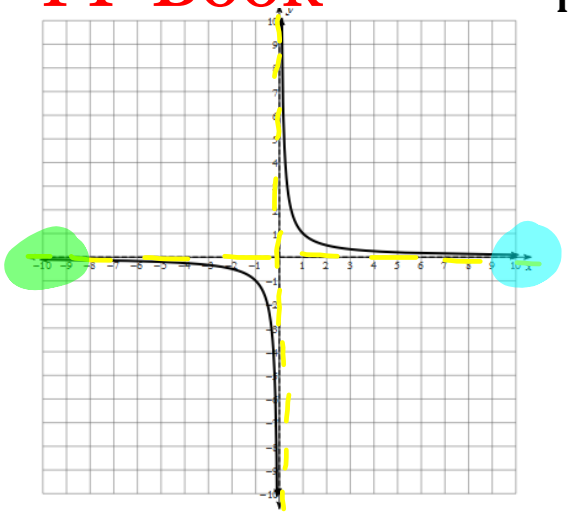
$f(x) = -(x+7)^3 + 3$



PF Book

Parent Function: Rational

$f(x) = \frac{1}{x}$



relative max: none

relative min: none

increasing intervals: none

decreasing intervals: $(-\infty, 0) \cup (0, \infty)$

domain: $(-\infty, 0) \cup (0, \infty)$

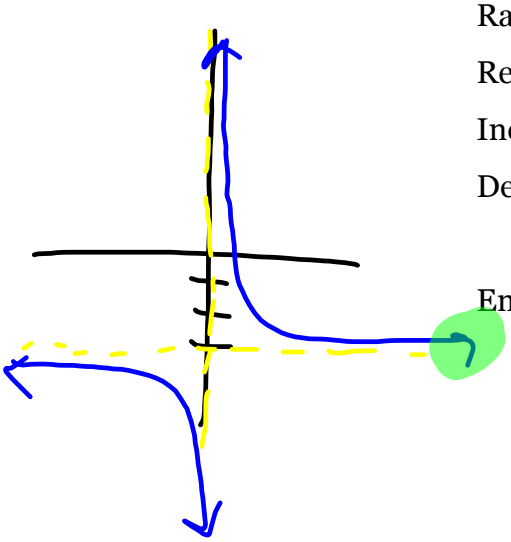
range: $(-\infty, 0) \cup (0, \infty)$

end behavior: $x \to \infty$ $f(x) \to$ 0

$x \to -\infty$ $f(x) \to$ 0

Notes sheet:

1.) $g(x) = \frac{1}{x} - 3$



Shifts: down 3

Domain: $(-\infty, 0) \cup (0, \infty)$

Range: $(-\infty, -3) \cup (-3, \infty)$

Relative Extrema: none

Increasing Interval: none

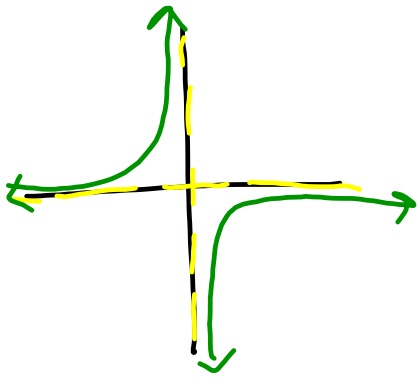
Decreasing Interval: $(-\infty, 0) \cup (0, \infty)$

End Behavior: $x \to \infty$ $g(x) =$ −3

$x \to -\infty$ $g(x) =$ −3

2.) $h(x) = -\frac{4}{x}$

$-4 \cdot \frac{1}{x}$



Shifts: flipped, stretch 4

Domain: $(-\infty, 0) \cup (0, \infty)$

Range: $(-\infty, 0) \cup (0, \infty)$

Relative Extrema: none

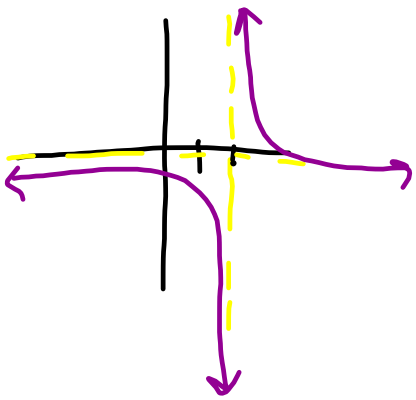
Increasing Interval: $(-\infty, 0) \cup (0, \infty)$

Decreasing Interval: none

End Behavior: $x \to \infty \quad h(x) = 0$

$x \to -\infty \quad h(x) = 0$

3.) $k(x) = \frac{1}{x-2}$



Shifts: right 2

Domain: $(-\infty, 2) \cup (2, \infty)$

Range: $(-\infty, 0) \cup (0, \infty)$

Relative Extrema: none

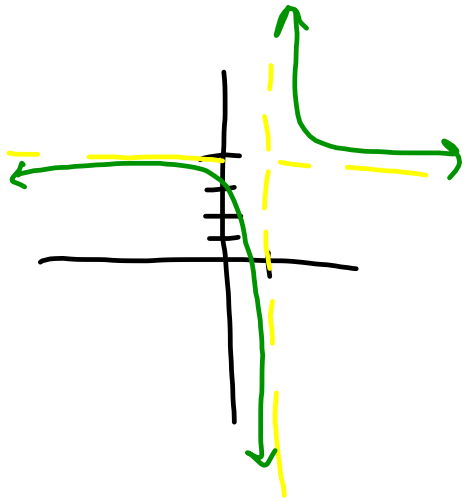
Increasing Interval: none

Decreasing Interval: $(-\infty, 2) \cup (2, \infty)$

End Behavior: $x \to \infty \quad k(x) = 0$

$x \to -\infty \quad k(x) = 0$

4.) $p(x) = \dfrac{2}{x-1} + 4$



Shifts: stretch 2, right 1, up 4

Domain: $(-\infty, 1) \cup (1, \infty)$

Range: $(-\infty, 4) \cup (4, \infty)$

Relative Extrema: none

Increasing Interval: none

Decreasing Interval: $(-\infty, 1) \cup (1, \infty)$

End Behavior: $x \to \infty \quad p(x) = 4$

$x \to -\infty \quad p(x) = 4$