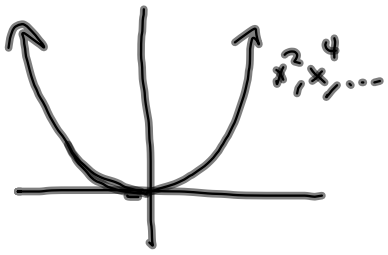
Testing! Sweet.

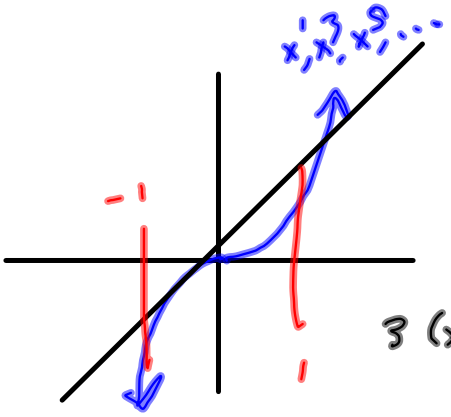
§1.1 #s 33, 35

x^{2n}



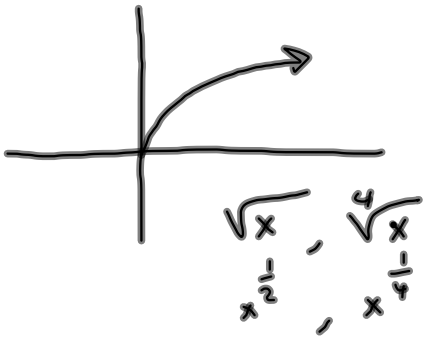
$3(x-7)^4 - 11$

x^{2n+1}

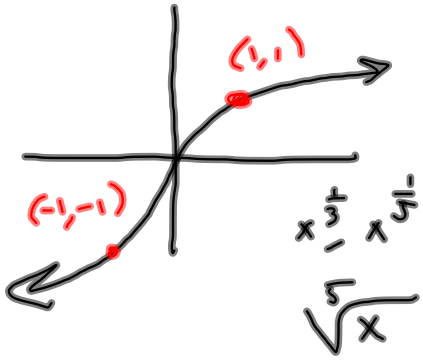


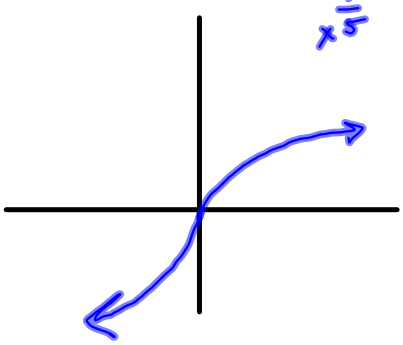
$3(x-7)^3 - 11$

$x^{\frac{1}{2n}} = \sqrt[2n]{x}$

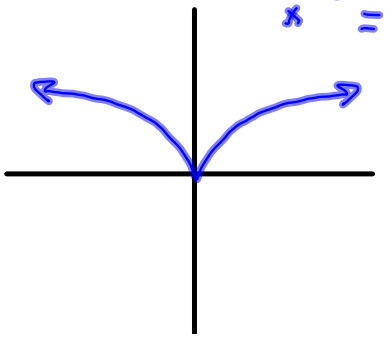


$x^{\frac{1}{2n+1}}$

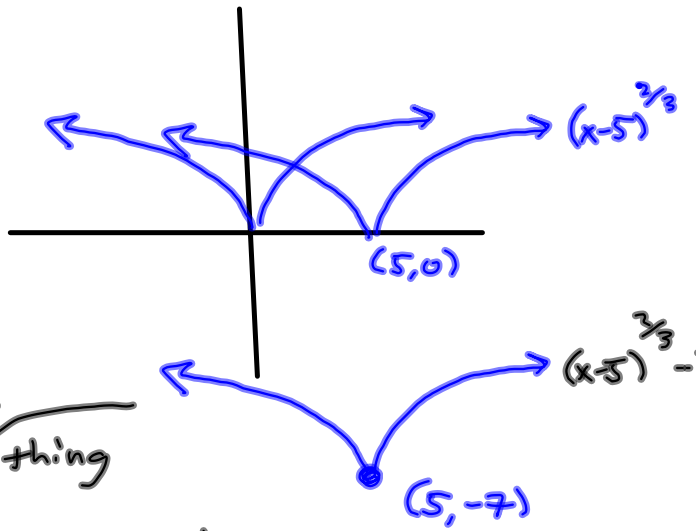




$x^{\frac{2}{5}} = \left(x^{\frac{1}{5}}\right)^2$



$(x-5)^{\frac{2}{3}}-7$



#33 §1.1 $\sqrt[3]{\text{thing}}$

Need "thing" real.

$2t-1$ Real $\Leftrightarrow$ t real

Domain in General

$\frac{\text{nonzero}}{0}$ Bad Need denom $\neq 0$

$\sqrt[2n]{\text{Negative}}$ Need radicand ≥ 0

Otherwise, $\mathcal{D} = \mathbb{R}$

#531-37: Find Domain

E $\frac{x-13}{x^2-6x-7} = f(x) \Rightarrow$

$\mathcal{D}(f) = \{x \mid x^2-6x-7 \neq 0\} = \{x \mid x \neq -1 \text{ OR } x \neq 7\}$

$x^2-6x-7=0$

$x^2-6x+3^2 = 7+3^2$

$(x-3)^2 = 16$

$x-3 = \pm 4$

$x = 3 \pm 4$ → 7, −1

$= (-\infty,-1) \cup (-1,7) \cup (7,\infty)$

$= \mathbb{R} \setminus \{-1, 7\}$

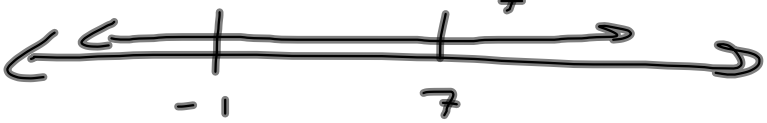
slickest.

NOTE: $\{x \mid x \neq -1 \text{ OR } x \neq 7\} =$

$\left((-\infty,-1) \cup (-1,\infty)\right) \cup \left((-\infty,7) \cup (7,\infty)\right)$

OR = ∪

=



$$\frac{x-6}{x^2+4x-6} = g(x)$$

Need $x^2+4x-6 \neq 0$

$x^2+4x+2^2 = 6+4$

$(x+2)^2 = 10$

$x+2 = \pm\sqrt{10}$

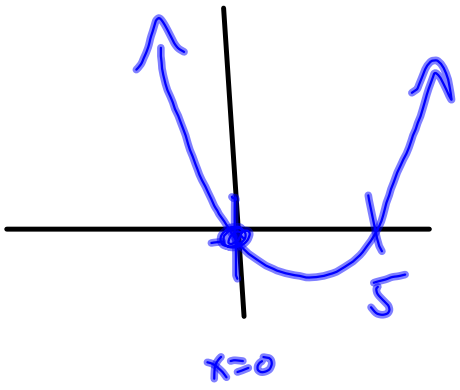
$x = -2 \pm \sqrt{10}$ $\rightarrow D(g) = \mathbb{R} \setminus \{-2 \pm \sqrt{10}\}$

Aug 20-12:41 PM

$$\frac{1}{\sqrt{x^2-5x}}$$

Need $\sqrt{x^2-5x} \neq 0$ AND Need $x^2-5x \geq 0$ } Need $x^2-5x > 0$,

$x(x-5) > 0$



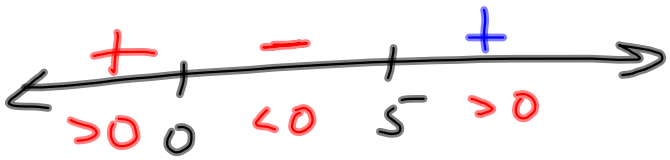
$x=0, 5$ are important values.

By graph:

$\{x \mid x < 0 \text{ OR } x > 5\}$ is cool.

$= (-\infty, 0) \cup (5, \infty)$

By end behavior: x^2 dominates ↗↗



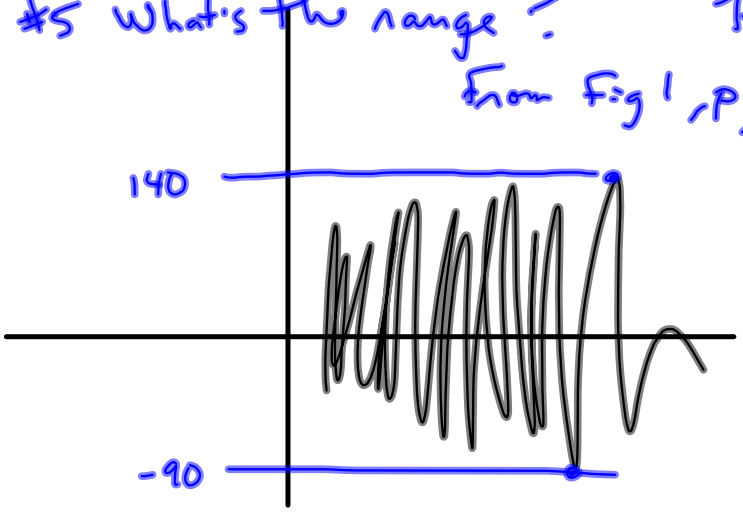
Test values

$(-\infty, 0)$	$x=-1$	$(-1)(-1-5) = (-1)(-6) = +6$	+	Yes
$(0,5)$	$x=1$	$(1)(1-5) = (1)(-4) = -4$	−	No
$(5, \infty)$	$x=6$	$(6)(6-5) =$ +		Yes

$(-\infty, 0) \cup (5, \infty)$

#5 What's the range? R

from Fig 1, pg 10



$R \approx [-90, 140]$