Warm up

Find the domain algebraically (if possible) and state in interval notation.

1. $f(x) = \dfrac{2\sqrt{3x-1}}{x-5}$

$x \neq 5$

$x \geq \frac{1}{3}$

$\left[\frac{1}{3}, 5\right)(5, \infty)$

2. $f(x) = 4x^3 - 7x + 5$

$(-\infty, \infty)$

3. $f(x) = \dfrac{1}{x^2 - 49}$

$x^2 - 49 \neq 0$

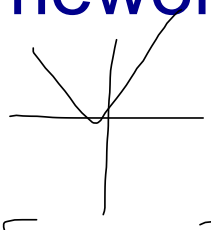
$x^2 \neq 49$

$x \neq \pm 7$

$(-\infty, -7)(-7, 7)(7, \infty)$

GO COUGARS!

Homework Questions



$[-2, 2]$

$[0, 2]$

$x^2 + y^2 = 4$

$y^2 = 4 - x^2$

$\sqrt{4 - x^2}$

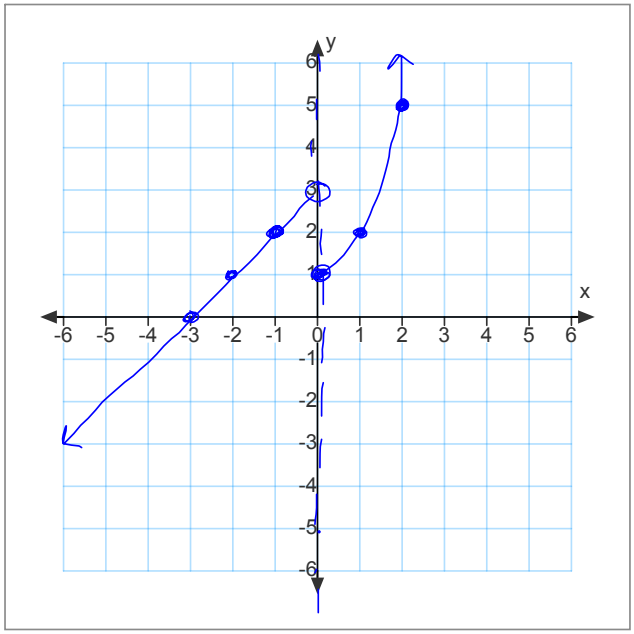
$4 - x^2 \geq 0$

1.3 Day 2 Graphs of functions

Graphing Piecewise functions by hand

Symmetry of functions

Odd/Even functions



Graphing Piecewise Functions

1. $f(x)=\begin{cases} x+6 & x\le -4 \\ -2x-4 & x>-4 \end{cases}$

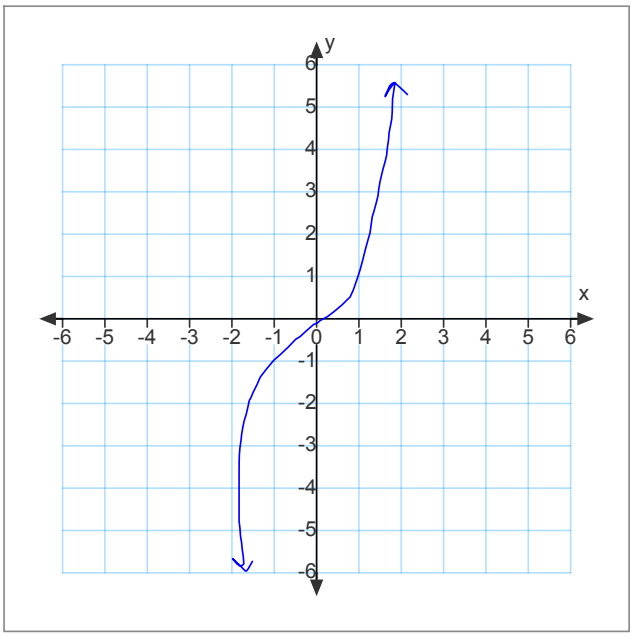
2. $f(x)=\begin{cases} 3+x & x<0 \\ x^2+1 & x\ge 0 \end{cases}$

$f(1)=2$

$f(0)=1$

$f(-1)=3+-1=2$

Observational Symmetry and odd/even functions



Graphically

Symmetry with respect to the x-axis

$x^2+y^2=r$, $y=\pm\sqrt{x}$

Symmetry with respect to the y-axis

$y=x^2$, $y=|x|$, $y=c$

Symmetry with respect to the origin

$y=x^3$, $y=\sin(x)$

even function

odd function

To determine symmetry algebraically

3. $f(x) = x^2$

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

$(-x)(-x)$

$= x^2 = f(x)$

even

4. $f(x) = x^3$

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

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

odd

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

$2(-x)^2 - 3(-x)$

$2x^2 + 3x$

Neither

HOMEWORK

p 39 43, 47, 49, 61, 63,

67-85 odd, 116-118