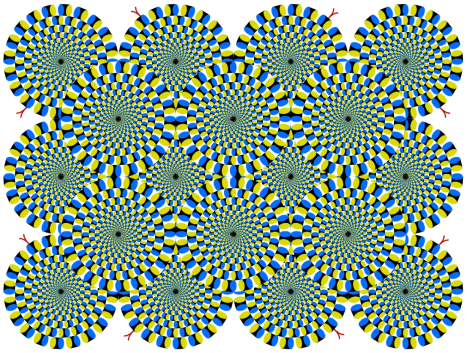
Functions and Graphs



Here's a weird optical illusion. It's not an animated picture but your eyes create the illusion of movement. Focus on one of the black dots.

Sep 8-4:21 PM

Answers Chapter 1 Ditto 1

1. D: $\{x|x \neq 5/2\}$ $(-\infty, \frac{5}{2}) \cup (\frac{5}{2}, \infty)$
   R: $\{y|y \neq 0\}$ $(-\infty, 0) \cup (0, \infty)$
2. D: $\{x|x < 5/2\}$ $(-\infty, 5/2)$
   R: $\{y|y > 0\}$ $(0, \infty)$
3. D: $\{x|x \geq 2\}$ $[2, \infty)$
   R: $\{y|y \geq 0\}$ $[0, \infty)$
4. D: $\{x|x < -1 \text{ or } x > 4\}$ $(-\infty, 1) \cup (4, \infty)$
   R: $\{y|y > 0\}$ $(0, \infty)$
5. D: $\{x| -4 < x \leq 5, x \neq 2\}$ $(-4, 2) \cup (2, 5]$
   R: $\{y| -2 \leq y < 5\}$ $[-2, 5)$
6. D: $\{x| -5 \leq x < 5\}$ $[-5, 5)$
   R: $\{y| -3 < y < 4\}$ $(-3, 4)$
7. D: $\{x|x \geq -3\}$ $[-3, \infty)$
   R: $\{y|y \in \mathbb{R}\}$ $(-\infty, \infty)$
8. D: $\{x| -2 < x < 5\}$ $(-2, 5)$
   R: $\{y| -4 < y < 5\}$ $(-4, 5)$

Sep 8-5:25 PM

FUNCTIONS

Day	# cans recycled	Lbs of aluminum
M	7500	300
T	8000	315
W	7000	285
T	7500	310
F	8500	340

IS THIS A FUNCTION? NO

WHICH IS THE DEPENDENT VARIABLE?
Lbs of Aluminum

Sep 8-5:15 PM

Summary of Domain. 4 cases.
Restrictions on the domain occur when:

1. Variable in the Denominator
   Looks Like: $\frac{1}{x}$
   To Solve: $x \neq 0$
2. Variable Under the Radical
   Looks Like: $\sqrt{x}$
   To Solve: $x \geq 0$
3. Variable Under a Radical in the Denominator Double Trouble
   Looks Like: $\frac{1}{\sqrt{x}}$
   To Solve: $x > 0$
4. No Troubles
   Domain: $(-\infty, \infty)$ or $\{x | x \in \mathbb{R}\}$

Aug 26-7:48 PM

Evaluate each for f(-3), then state the domain and range for each.

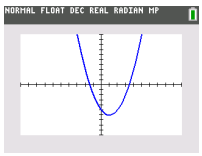
1. $f(x) = x^2 - 2x - 5$

   $f(-3) = (-3)^2 - 2(-3) - 5 = 10$

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

   range: $[-6, \infty)$

   T. P. $(1, -6)$



2. $f(x) = \sqrt{6x + 34}$

   $f(-3) = \sqrt{6(-3) + 34} = \sqrt{16} = 4$

   domain: $6x + 34 \geq 0$, $x \geq -34/6$ $\left[-\frac{34}{6}, \infty\right)$

   range: $[0, \infty)$

Sep 8-5:19 PM

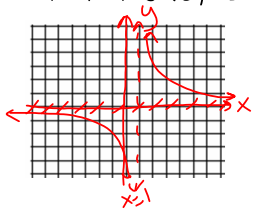
Find the domain algebraically. Use a graphing calculator to find the range and to verify your answer for the domain.

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

   D: $x - 1 \neq 0$, $x \neq 1$

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

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



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

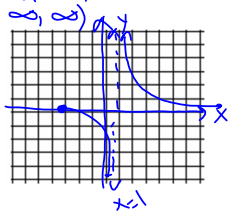
   D: $x + 3 \geq 0$

   $x \geq -3$ $[-3, 1) \cup$

   $x - 1 = 0$ $(1, \infty)$

   $x = 1$

   R $(-\infty, \infty)$

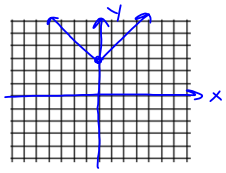


Sep 8-5:19 PM

5. $f(x) = |x| + 3$

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

R: $[3, \infty)$



Sep 9-7:03 AM

6. $g(x) = \frac{1}{1-x^2}$

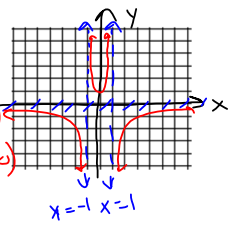
D: $1 - x^2 \neq 0$

$\sqrt{x^2} \neq \sqrt{1}$

$x \neq \pm 1$

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

R: $(-\infty, 0) \cup [1, \infty)$



Sep 9-7:04 AM

7. $f(x) = \frac{x^2 - 18}{x^2 - 3x - 4}$

D: $x^2 - 3x - 4 \neq 0$

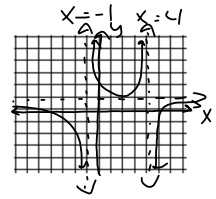
$(x-4)(x+1) \neq 0$

$x - 4 = 0 \quad x + 1 = 0$

$x = 4 \quad x = -1$

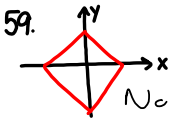
$(-\infty, -1) \cup (-1, 4) \cup (4, \infty)$

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

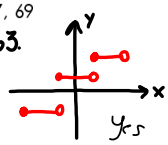


Sep 9-7:04 AM

In text, pg 89: 59, 63, 67, 69

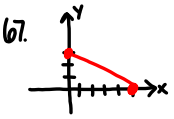
59. 

No

63. 

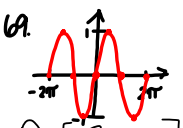
Yes

} function?

67. 

D: $[0, 5]$

R: $[0, 3]$

69. 

D: $[-2\pi, 2\pi]$

R: $[-1, 1]$

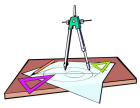
} D & R

Sep 8-5:21 PM

Homework:

WS 1-4

pg 89: 60 - 70 Even



QUIZ Friday

Sep 21-5:14 PM