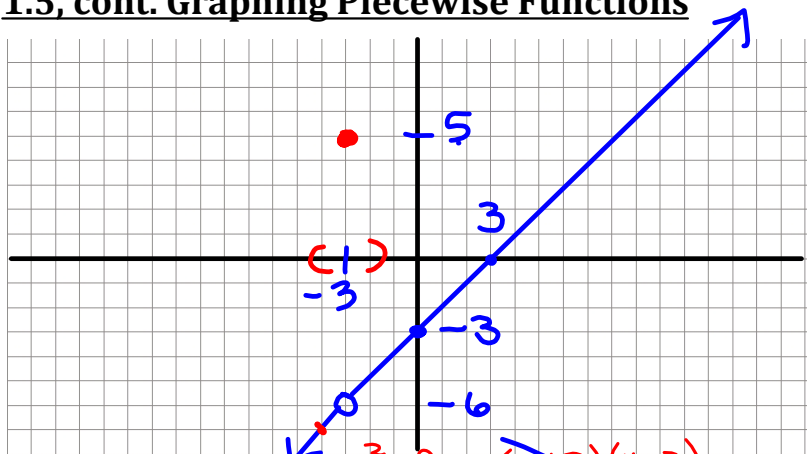


- 1.2:
  - #15-29odd (determining if a relation is a function; determining function values)
  - #40,41,42,45,48 (determining domain of a function)
  - #59-70all (determining if a graph is a function; domain & range from graph)
- 1.4:
  - #35-47odd; 53-63odd (determining equations of lines; parallel v. perpendicular)
- 1.5:
  - #1-16all (determining characteristics of functions from graphs)
  - #47-61odd (determining function values of & graphing piecewise functions)
  - #69-74all (finding domain, range & equation given graph of a piecewise function)
- 1.6: #23,29,31; 45, 49, 51; 63, 71,75; 81, 83 (algebra of functions)
- 1.7: #9,11,21,23; 39-47odd (symmetry tests)
  - #59-69odd; 77-83 odd; 93-101odd; 115-121odd (graphing with transformations)
- 2.4: #1,2; 15-22all; 23-27odd (parabolas)
- 2.4: #3-13 odd

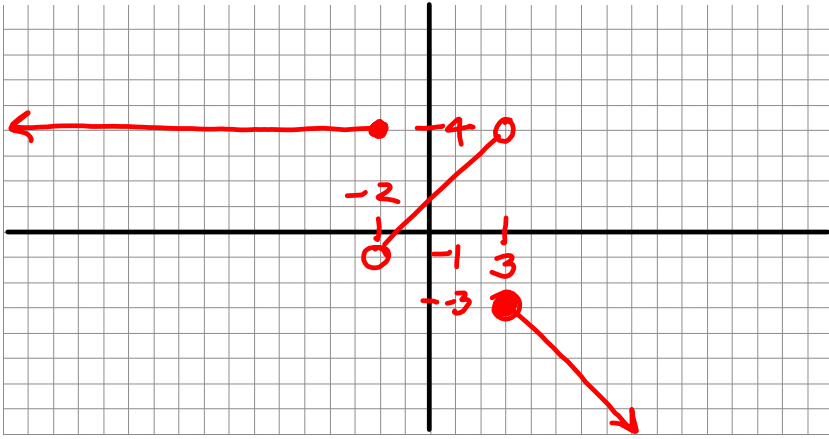
**1.5, cont. Graphing Piecewise Functions**



56.  $f(x) = \begin{cases} \frac{x^2-9}{x+3}, & x \neq -3 \\ 5, & x = -3 \end{cases}$

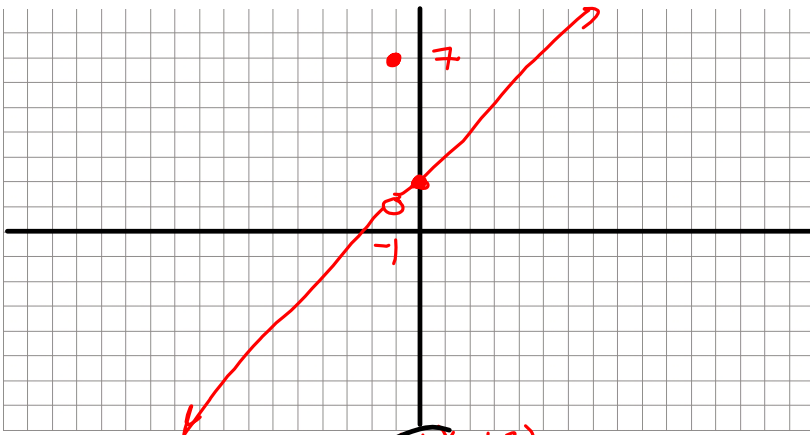
$\frac{x^2-9}{x+3} = \frac{(x+3)(x-3)}{x+3} = x-3$

- domain:  $(-\infty, \infty)$
- range:  $(-\infty, -6) \cup (-6, \infty)$
- increasing:  $(-\infty, -3) \cup (-3, \infty)$
- decreasing: N/A
- constant: N/A
- relative max:  $(-3, 5)$
- relative min: N/A
- absolute max: N/A
- absolute min: N/A



57.  $f(x) = \begin{cases} 4, & x \leq -2 \\ x+1, & -2 < x < 3 \\ -x, & x \geq 3 \end{cases}$

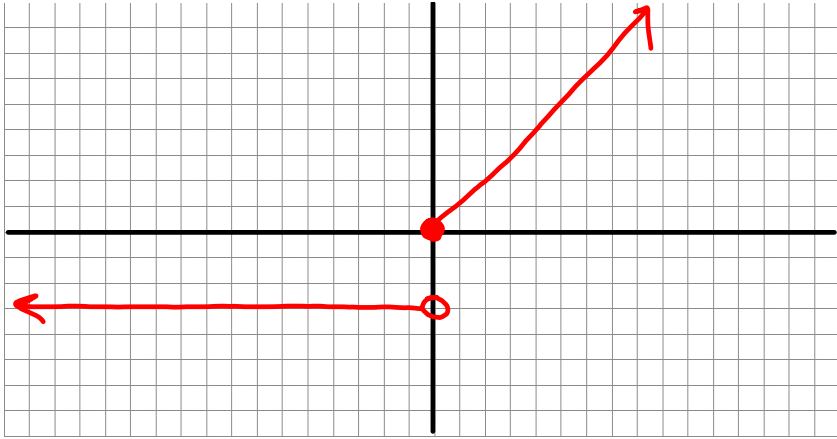
domain:  $(-\infty, \infty)$   
 range:  $(-\infty, -3] \cup (-1, 4]$   
 increasing:  $(-2, 3)$   
 decreasing:  $(3, \infty)$   
 constant:  $(-\infty, -2)$   
 relative max: N/A  
 relative min: N/A  
 absolute max: 4 @  $x \leq -2$   
 absolute min: N/A



58.  $f(x) = \begin{cases} \frac{x^2+3x+2}{x+1}, & x \neq -1 \\ 7, & x = -1 \end{cases}$

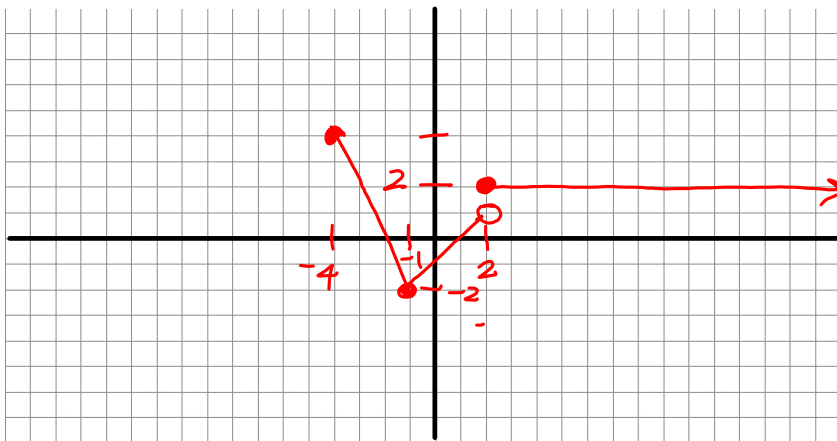
$\frac{(x+1)(x+2)}{x+1} = x+2$

domain:  $(-\infty, \infty)$   
 range:  $(-\infty, 1) \cup (1, \infty)$   
 increasing:  $(-\infty, -1) \cup (-1, \infty)$   
 decreasing: N/A  
 constant: N/A  
 relative max:  $(-1, 7)$   
 relative min: N/A  
 absolute max: N/A  
 absolute min: N/A



$$70. \quad g(x) = \begin{cases} -3 & , x < 0 \\ x & , x \geq 0 \end{cases}$$

domain:  $\mathbb{R}$   
 range:  $\{-3\} \cup [0, \infty)$   
 increasing:  $(0, \infty)$   
 decreasing: N/A  
 constant:  $(-\infty, 0)$   
 relative max: N/A  
 relative min: N/A  
 absolute max: N/A  
 absolute min:  $-3 @ x < 0$



$$71. \quad f(x) = \begin{cases} -2x - 4 & , -4 \leq x \leq -1 \\ x - 1 & , -1 \leq x < 2 \\ 2 & , x \geq 2 \end{cases}$$

domain:  $[-4, \infty)$   
 range:  $[-2, 4]$   
 increasing:  $(-1, 2)$   
 decreasing:  $(-4, -1)$   
 constant:  $(2, \infty)$   
 relative max:  $(-4, 4)$   
 relative min:  $(-1, -2)$   
 absolute max:  $4 @ x = -4$   
 absolute min:  $-2 @ x = -1$