Pg. 108

#25, 26, 33, 34, 47, 48, 50

Vertical/horizontal
Compression/stretch

Due Today

26) $y = x^3$

h.s by 4

$y = \left(\frac{1}{4}x\right)^3$

47) $g(x) = 4\sqrt{x}$

V.S.

48) $g(x) = \frac{1}{2}\sqrt{x}$

V.C.

Homework Answers

p. 108 #25, 26, 33, 34, 47, 48, 50

25) $y = 4x^3$

26) $y = \left(\frac{1}{4}x\right)^3$

33) (c) (1, 6)

34) (c) (2, 2)

47) Vertical Stretch

48) Vertical Compression

50) Horizontal Compression.

Questions on Yesterday's Packet?

Algebra 2: Piecewise Worksheet

Name Key Per.

1. Evaluate the function for the given value of x.

$f(x) = \begin{cases} 3, & \text{if } x \le 0 \\ 2, & \text{if } x > 0 \end{cases}$ $g(x) = \begin{cases} x + 5, & \text{if } x \le 3 \\ 2x - 1, & \text{if } x > 3 \end{cases}$ $h(x) = \begin{cases} \frac{1}{2}x - 4, & \text{if } x \le -2 \\ 3 - 2x, & \text{if } x > -2 \end{cases}$

a. $f(2) = 2$	b. $g(7) = 13$	c. $h(-4) = -6$
d. $h(-2) = -5$	e. $f\left(\frac{1}{2}\right) = 3$ ~~2~~	f. $g(3) = 8$

2. Match the piecewise function with its graph.

a. E (1,-3)(0,-4) $f(x) = \begin{cases} x - 4, & \text{if } x \le 1 \\ 3x, & \text{if } x > 1 \end{cases}$ (1,3)(2,6)	b. B (0,4)(-1,3) $f(x) = \begin{cases} x + 4, & \text{if } x \le 0 \\ 2x + 4, & \text{if } x > 0 \end{cases}$ (0,4)(1,6)	c. D (1,1)(0,-2) $f(x) = \begin{cases} 3x - 2, & \text{if } x \le 1 \\ x + 2, & \text{if } x > 1 \end{cases}$ (1,3)(2,4)
d. F (0,3)(1,5) $f(x) = \begin{cases} 2x + 3, & \text{if } x \ge 0 \\ x + 4, & \text{if } x < 0 \end{cases}$ (0,4)(-1,3)	e. C (-1,-4)(0,-1) $f(x) = \begin{cases} 3x - 1, & \text{if } x \ge -1 \\ -5, & \text{if } x < -1 \end{cases}$ (-1,-5)(-2,-5)	f. A (1,-4)(0,-1) $f(x) = \begin{cases} -3x - 1, & \text{if } x \le 1 \\ -5, & \text{if } x > 1 \end{cases}$ (1,-5)(2,-5)

A. B. C.

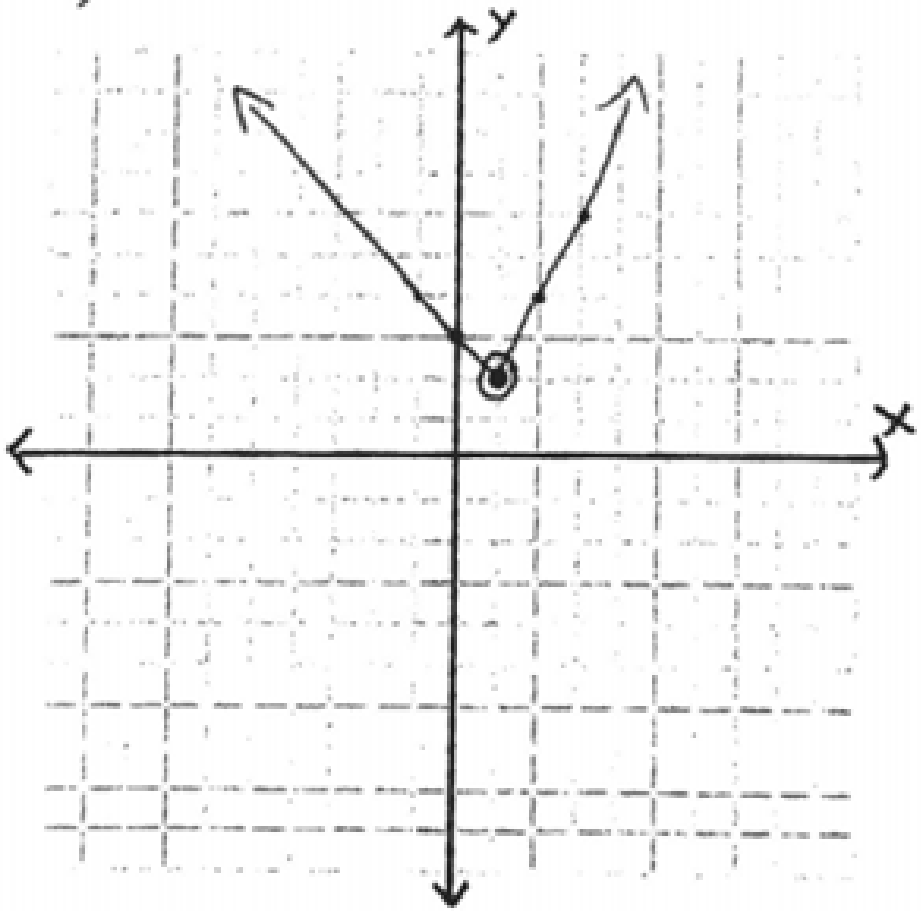
3. Graph each function on graph paper.

$(1,2)(2,4)(3,6)$

$$f(x) = \begin{cases} 2x, & \text{if } x \geq 1 \\ -x+3, & \text{if } x < 1 \end{cases}$$

a. $(1,2)(0,3)(-1,4)$

3a)

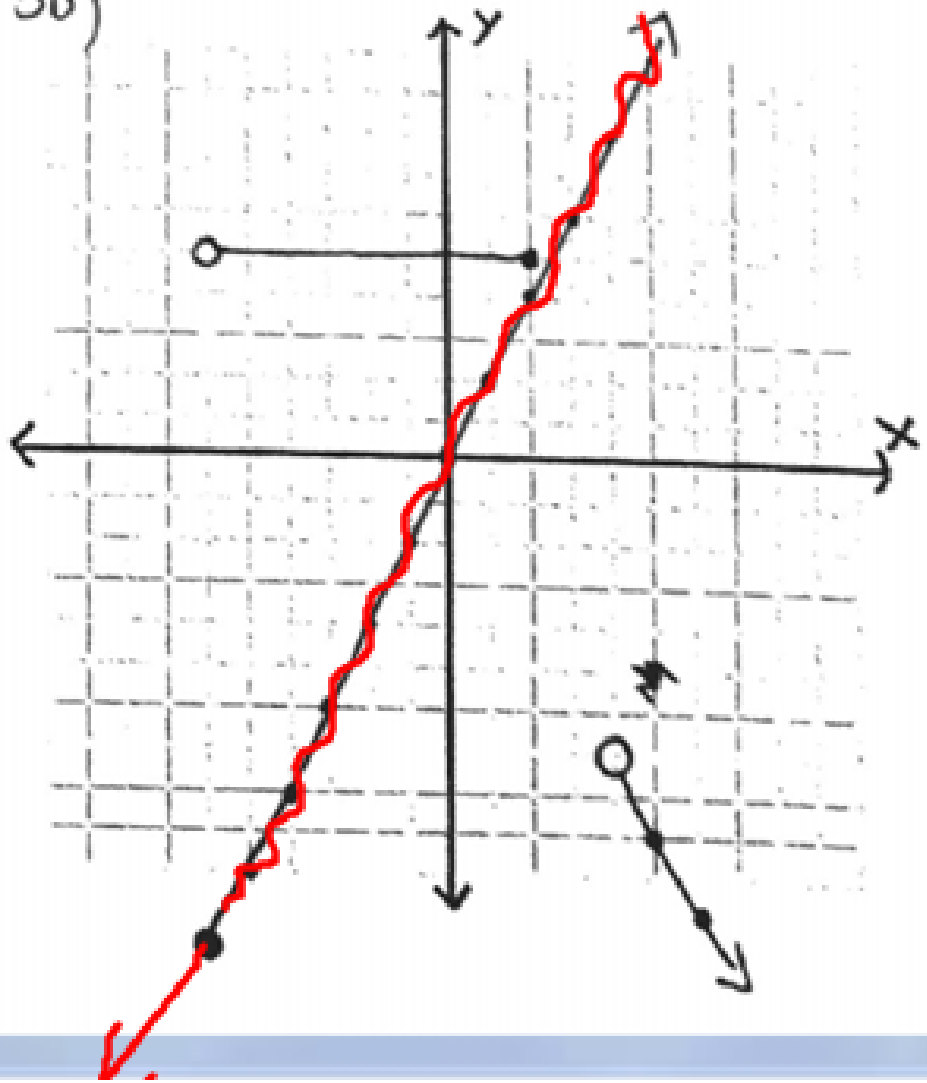


b.

$$f(x) = \begin{cases} (-6,12)(-5,-10)(-4,-8) \\ 2x \text{ if } x \leq -6 \\ 5 \text{ if } -6 < x \leq 2 \\ -2x+1 \text{ if } x > 4 \end{cases}$$

$(4,-7)(5,-9)(6,-11)$

3b)



Worksheet - Piecewise Functions

Evaluate the following for $f(x)=\begin{cases}3x-5, & x>4\\ x^2, & x\le 4\end{cases}$:

1. f(7) = 16

$3(7)-5$

2. f(4) = 16

$(4)^2$

3. f(-3) = 9

$(-3)^2$

Evaluate the following for $f(x)=\begin{cases}-2x+1, & x\le 1\\ 3, & 1<x<3\\ 6-2x, & x\ge 3\end{cases}$:

4. f(10)

$6-2(10)=-14$

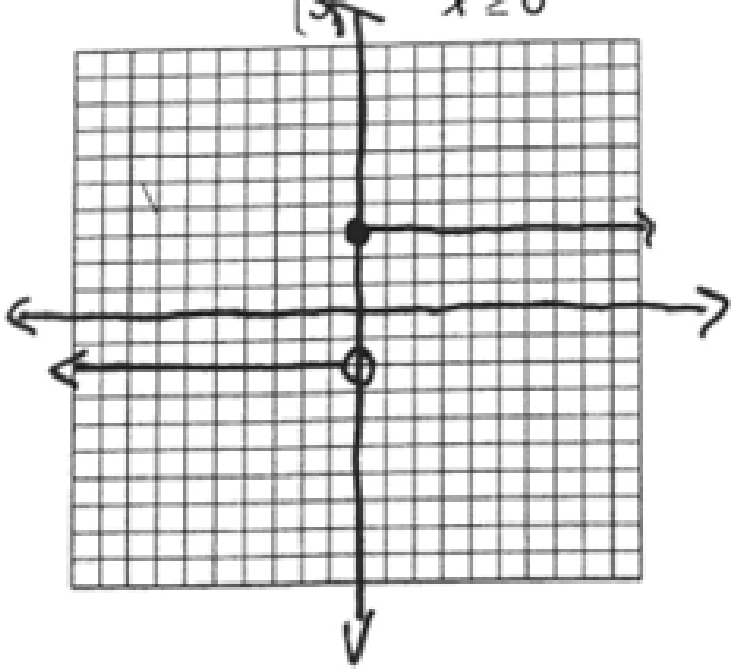
5. f(2) = 3

6. f(0)

$-2(0)+1=1$

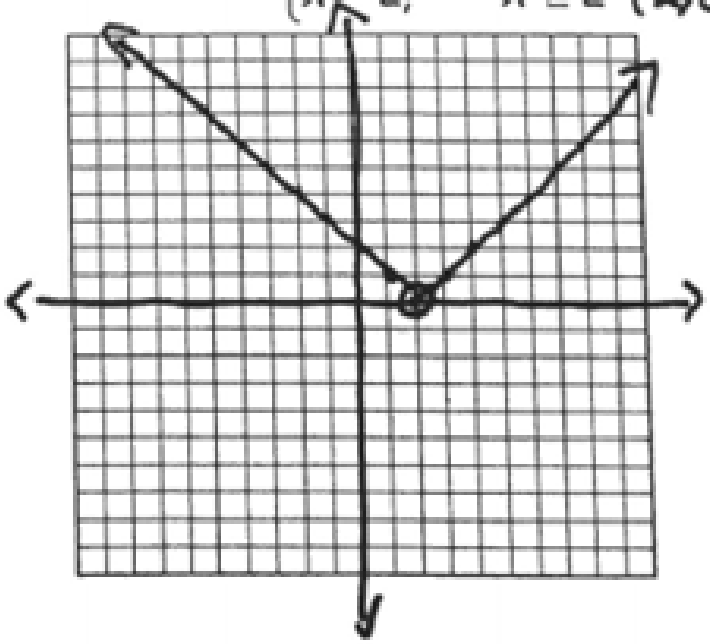
Graph the following piecewise functions.

7. $f(x) = \begin{cases} -2, & x < 0 \\ 3, & x \geq 0 \end{cases}$



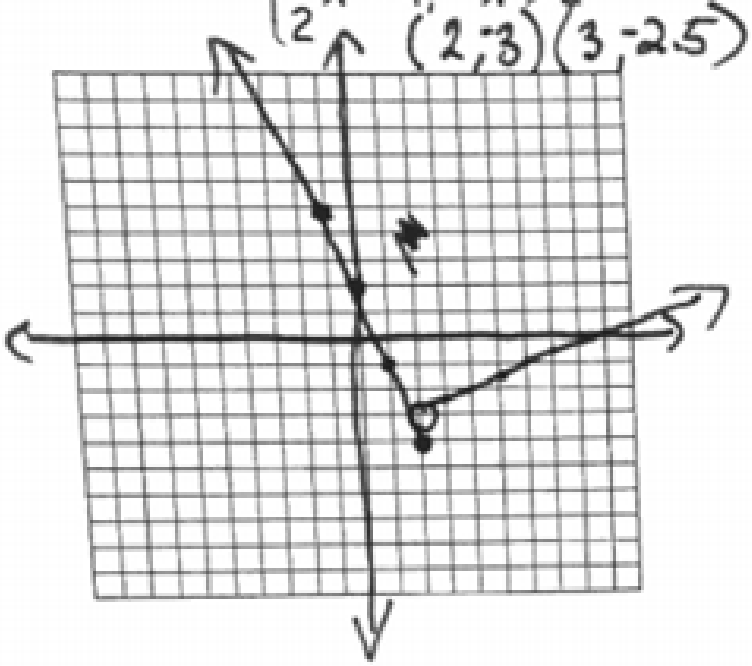
(2,0) (1,1) (0,2)

8. $g(x) = \begin{cases} -x+2, & x < 2 \\ x-2, & x \geq 2 \end{cases}$ (2,0) (3,1) (4,2)

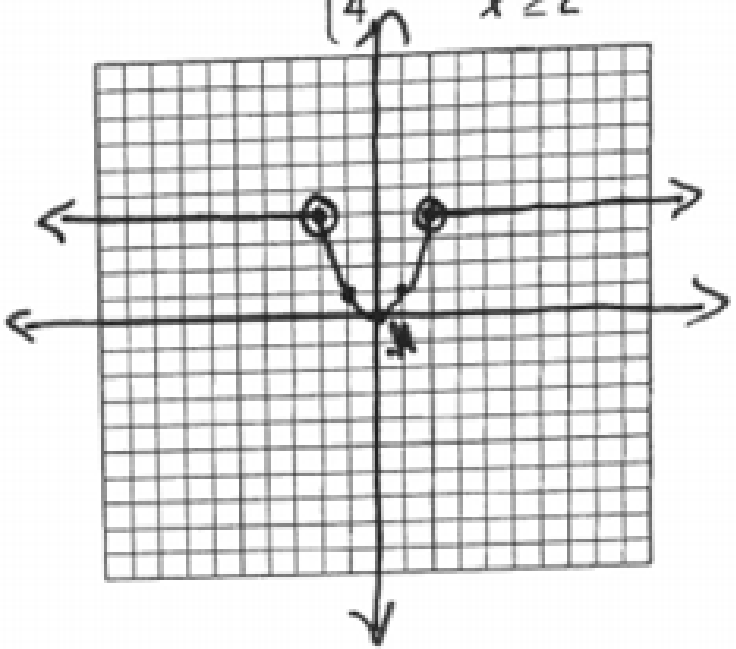


$(2,-4)(1,-1)$

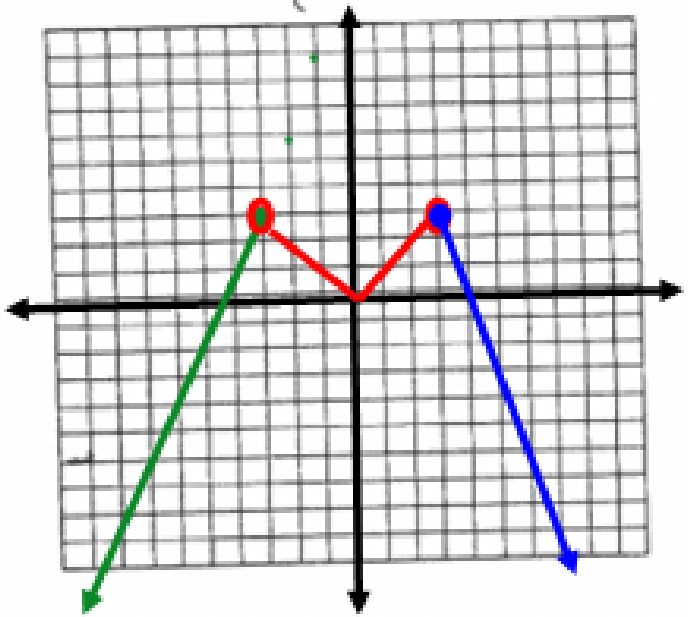
9. $h(x) = \begin{cases} -3x+2, & x \le 2 \\ \frac{1}{2}x - 4, & x > 2 \end{cases}$ $(2,-3)(3,-2.5)$



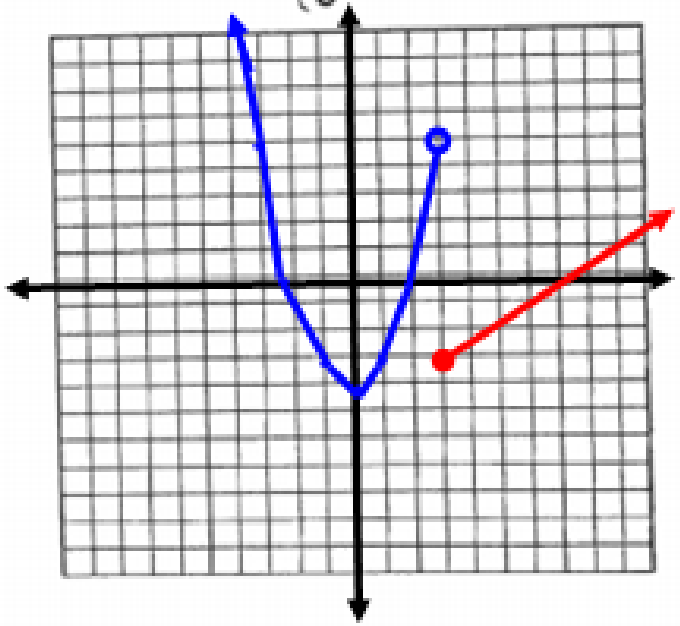
10. $f(x) = \begin{cases} 4, & x \le -2 \\ x^2, & -2 < x < 2 \\ 4, & x \ge 2 \end{cases}$ $(-2,4)(-1,1)$



11. $g(x) = \begin{cases} 3x+12, & x \le -3 \\ |x|, & -3 < x < 3 \\ -3x+12, & x \ge 3 \end{cases}$



12. $h(x) = \begin{cases} x^2 - 4, & x < 3 \\ \frac{2}{3}x - 5, & x \ge 3 \end{cases}$



13. Which of the piecewise functions are continuous?

8, 10, 11

14. Which of the piecewise functions are discontinuous?

7, 9, 12

Review Sheet

Due Monday for Extra Credit