1.5 Practice

Practicing our Piecewise (again!)

Name_____   Date_____

Evaluate the function for the given value of x.

$$f(x) = \begin{cases} 3, & \text{if } x \leq 0 \\ 2, & \text{if } x > 0 \end{cases}$$

$$g(x) = \begin{cases} x + 5, & \text{if } x \leq 3 \\ 2x - 1, & \text{if } x > 3 \end{cases}$$

$$h(x) = \begin{cases} \frac{1}{2}x - 4, & \text{if } x \leq -2 \\ 3 - 2x, & \text{if } x > -2 \end{cases}$$

1. $f(2) = 2$

2. $f(-4) = 3$

3. $f(0) = 3$

4. $f\left(\frac{1}{2}\right) = 2$

5. $g(7) = 2(7) - 1 = 13$

6. $g(0) = 0 + 5 = 5$

7. $g(-1) = -1 + 5 = 4$

8. $g(3) = 3 + 5 = 8$

9. $h(-4) = \frac{1}{2}(-4) - 4 = -6$

10. $h(-2) = \frac{1}{2}(-2) - 4 = -5$

11. $h(-1) = 3 - 2(-1) = 5$

12. $h(6) = 3 - 2(6) = -9$

Match the piecewise function with its graph. Write the answer next to the problem number.

13. $f(x) = \begin{cases} x - 4, & \text{if } x \leq 1 \\ 3x, & \text{if } x > 1 \end{cases}$ **E**
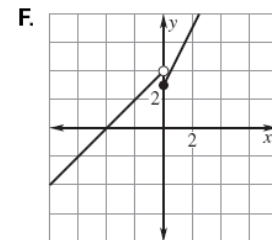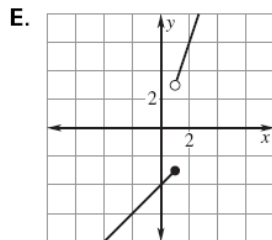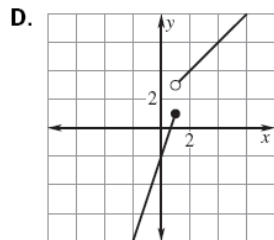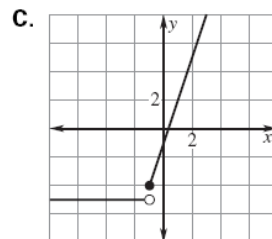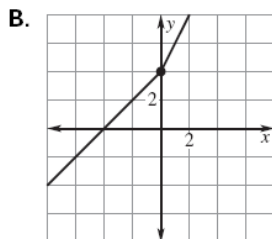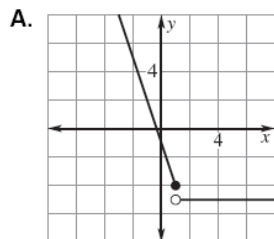
14. $f(x) = \begin{cases} x + 4, & \text{if } x \leq 0 \\ 2x + 4, & \text{if } x > 0 \end{cases}$ **B**

15. $f(x) = \begin{cases} 3x - 2, & \text{if } x \leq 1 \\ x + 2, & \text{if } x > 1 \end{cases}$ **D**

16. $f(x) = \begin{cases} 2x + 3, & \text{if } x \geq 0 \\ x + 4, & \text{if } x < 0 \end{cases}$ **F**

17. $f(x) = \begin{cases} 3x - 1, & \text{if } x \geq -1 \\ -5, & \text{if } x < -1 \end{cases}$ **C**
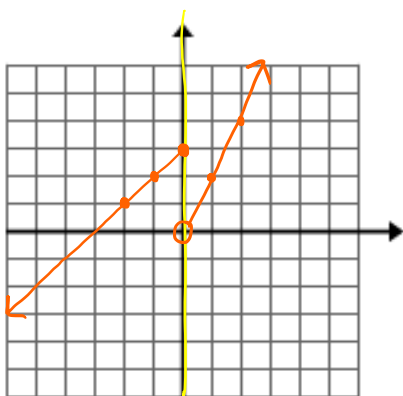
18. $f(x) = \begin{cases} -3x - 1, & \text{if } x \leq 1 \\ -5, & \text{if } x > 1 \end{cases}$ **A**

A.

B.

C.

D.

E.

F.

Graph the function.

19.

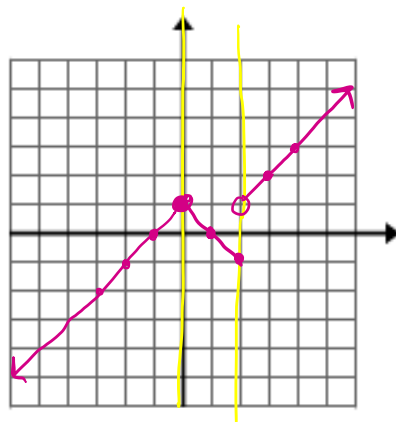$$f(x) = \begin{cases} x + 3, & \text{if } x \leq 0 \\ 2x, & \text{if } x > 0 \end{cases}$$
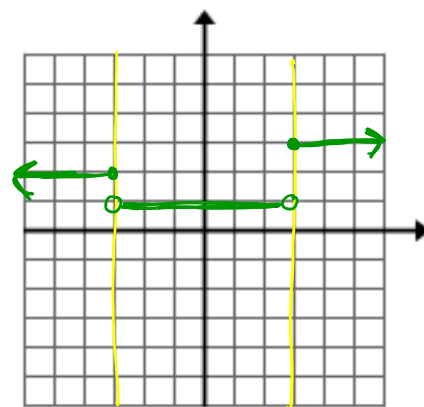
20.

$$f(x) = \begin{cases} x + 1, & \text{if } x < 0 \\ -x + 1, & \text{if } 0 \leq x \leq 2 \\ x - 1, & \text{if } x > 2 \end{cases}$$

21.

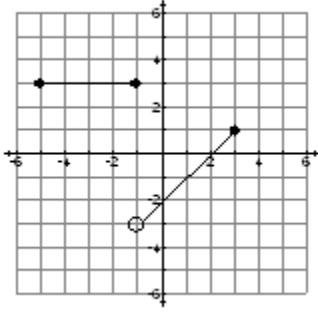$$f(x) = \begin{cases} 2, & \text{if } x \leq -3 \\ -1, & \text{if } -3 < x < 3 \\ 3, & \text{if } x \geq 3 \end{cases}$$

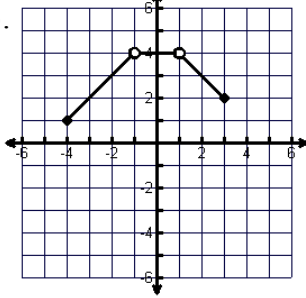# Practicing our Piecewise (again!)

Name_____   Date_____

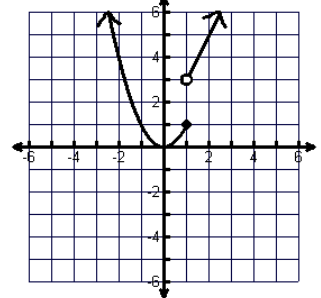**Write the equation of the piecewise functions below.**

22.

$$f(x) = \begin{cases} 3 & \text{if } -5 \le x \le -1 \\ x-2 & \text{if } -1 < x \le 3 \end{cases}$$
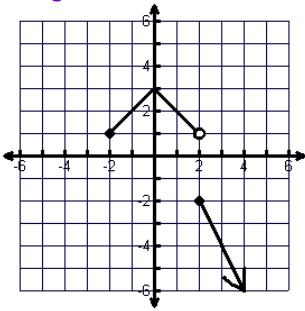
23.

$$f(x) = \begin{cases} x+5 & \text{if } -4 \le x < -1 \\ 4 & \text{if } -1 < x < 1 \\ -x+5 & \text{if } 1 < x \le 3 \end{cases}$$

24.

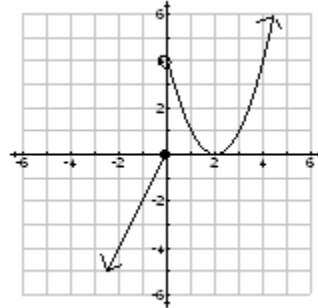$$f(x) = \begin{cases} x^2 & \text{if } x \le -1 \\ x+2 & \text{if } x > -1 \end{cases}$$

25.

$$f(x) = \begin{cases} -|x|+3 & \text{if } -2 \le x < 2 \\ -x & \text{if } x \ge 2 \end{cases}$$

OR

$$f(x) = \begin{cases} x+3 & \text{if } -2 \le x \le 0 \\ -x+3 & \text{if } 0 < x < 2 \\ -x & \text{if } x \ge 2 \end{cases}$$

26.

$$f(x) = \begin{cases} -2x & \text{if } x \le 0 \\ x^2-4x+4 & \text{if } x > 0 \\ \quad \text{or} \\ (x-2)^2 \end{cases}$$

Omit for now :(

27. Your favorite dog groomer charges according to your dog's weight. If your dog is 15 pounds and under, the groomer charges $35. If your dog is between 15 and up to 40 pounds, she charges $40. If your dog is over 40 pounds, she charges $40, plus an additional $2 for each pound.

   Write a piecewise function that describes what your dog groomer charges.

Omit for now :(

28. You go to Giant to buy some candy. You decide to buy snickers because they have a special deal on snickers. A pound of snickers costs $3.45, but if you buy 4 or more pounds, they only cost $3.00per bag. Write a piecewise function to represent this situation.