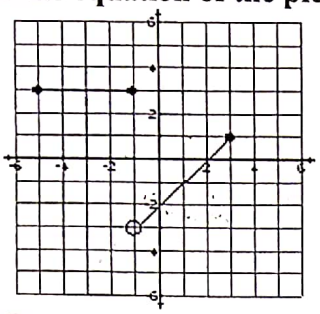
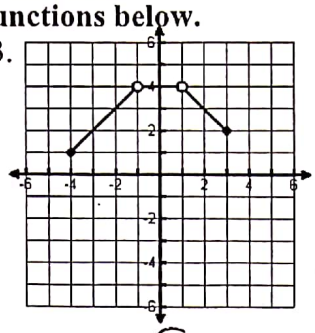
Practicing our Piecewise (again!)

Name_____ Date_____

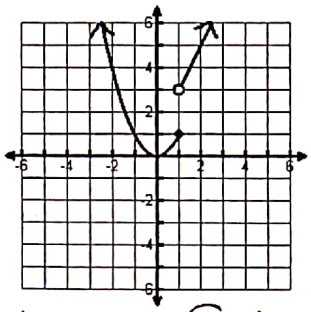
Write the equation of the piecewise functions below.

22. 

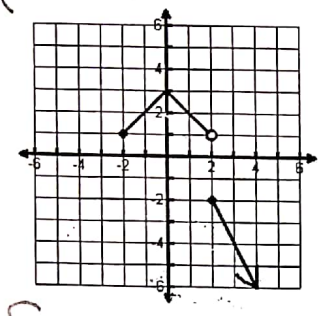
$f(x) = \begin{cases} 3, & -5 \le x \le -1 \\ x-2, & -1 < x \le 3 \end{cases}$

23. 

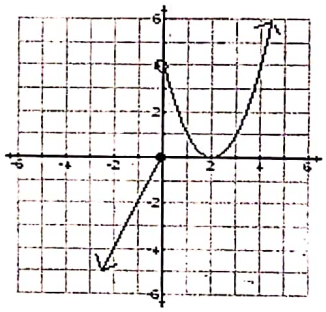
$f(x) = \begin{cases} x+5, & -4 \le x < -1 \\ 4, & -1 < x < 1 \\ -x+5, & 1 < x \le 3 \end{cases}$

24. 

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

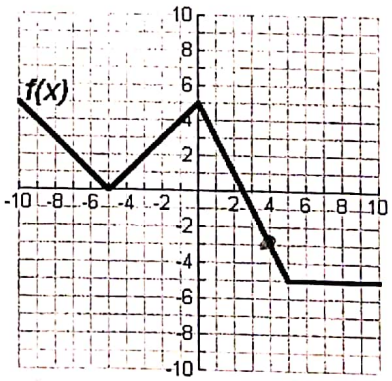
25. 

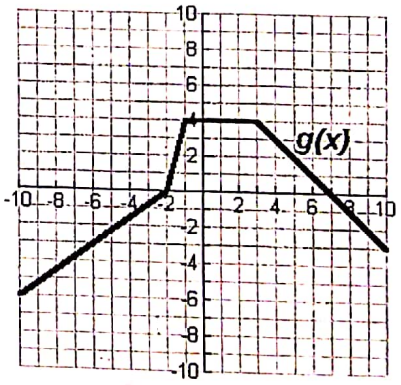
$f(x) = \begin{cases} x+3, & -2 \le x \le 0 \\ -x+3, & 0 < x < 2 \\ -2x+2, & x \ge 2 \end{cases}$

26. 

$f(x) = \begin{cases} 2x, & x \le 0 \\ (x-2)^2, & x > 0 \end{cases}$

27. Use the graphs of f and g to answer the questions.





(a) $(g-f)(10)$ $g(10) - f(10)$
$-3 - (-5) = 2$

(b) $(fg)(6)$ $f(6) \cdot g(6)$
$-5 \cdot 1 = -5$

(c) $g(f^{-1}(-3))$ $g(4) = 3$

(d) $3g(2f(x)+1)$ at $x = 4$
$3 \cdot g(2f(4)+1)$
$3 \cdot g(2 \cdot -3 + 1)$
$3 \cdot g(-5)$
$3 \cdot -2 = -6$

(e) On what interval(s) is f(x) increasing?
$(-5, 0)$

(f) What is the absolute maximum value of g(x)?
4

Day 3 CW

WS #13

Practicing our Piecewise (again!)

Name KEY Date

Evaluate the function for the given value of x.

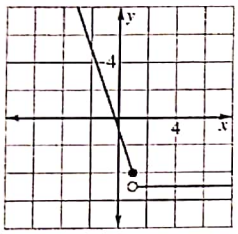
$f(x) = \begin{cases} 3, & \text{if } x \le 0 \\ 2, & \text{if } x > 0 \end{cases}$ $g(x) = \begin{cases} x + 5, & \text{if } x \le 3 \\ 2x - 1, & \text{if } x > 3 \end{cases}$ $h(x) = \begin{cases} \frac{1}{2}x - 4, & \text{if } x \le -2 \\ 3 - 2x, & \text{if } x > -2 \end{cases}$

1. $f(2)$ 2
2. $f(-4)$ 3
3. $f(0)$ 3
4. $f\left(\frac{1}{2}\right)$ 2
5. $g(7)$ 13
6. $g(0)$ 5
7. $g(-1)$ 4
8. $g(3)$ 8
9. $h(-4)$ -6
10. $h(-2)$ -5
11. $h(-1)$ 5
12. $h(6)$ -9

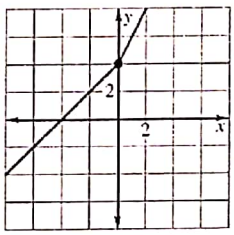
Match the piecewise function with its graph. Write the answer next to the problem number.

13. $f(x) = \begin{cases} x - 4, & \text{if } x \le 1 \\ 3x, & \text{if } x > 1 \end{cases}$ E
14. $f(x) = \begin{cases} x + 4, & \text{if } x \le 0 \\ 2x + 4, & \text{if } x > 0 \end{cases}$ B
15. $f(x) = \begin{cases} 3x - 2, & \text{if } x \le 1 \\ x + 2, & \text{if } x > -1 \end{cases}$ D
16. $f(x) = \begin{cases} 2x + 3, & \text{if } x \ge 0 \\ x + 4, & \text{if } x < 0 \end{cases}$ F
17. $f(x) = \begin{cases} 3x - 1, & \text{if } x \ge -1 \\ -5, & \text{if } x < -1 \end{cases}$ C
18. $f(x) = \begin{cases} -3x - 1, & \text{if } x \le 1 \\ -5, & \text{if } x > 1 \end{cases}$ A

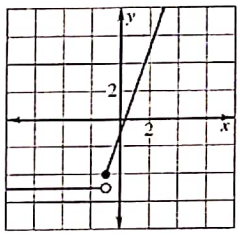
A.



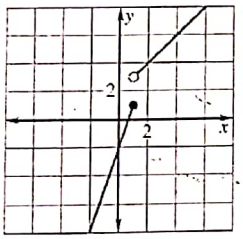
B.



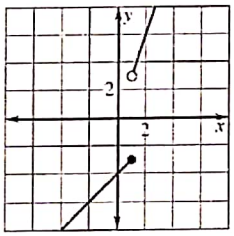
C.



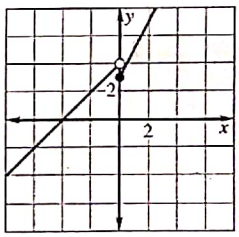
D.



E.



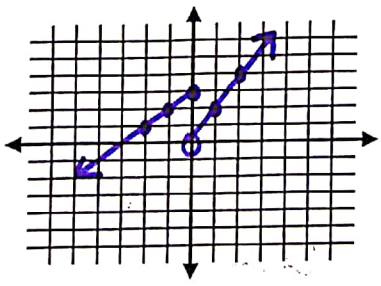
F.



Graph the function.

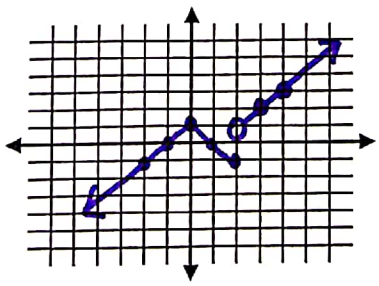
19.

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



20.

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



21.

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