Secondary II-Unit 3.2 Function Notation Day 4 Homework Name_____

Piecewise Functions

Date_____ Period____

Given $f(x) = \begin{cases} 3x + 2, & -9 \le x < -1 \\ x - 5, & -1 < x \le 4 \\ 2x, & x > 4 \end{cases}$ **, find the following.**

1) $f(-4)$

2) $f(0)$

3) $f(4)$

4) $f(12)$

5) $f(-1)$

6) $f(-3)$

Given $f(x) = \begin{cases} -\frac{3}{2}x - 7, & -12 \le x < -6 \\ (x-2)^2, & -6 < x \le 7 \\ \frac{1}{3}x + 2, & x > 7 \end{cases}$ **, find the following.**

7) $f(-12)$

8) $f(0)$

9) $f(9)$

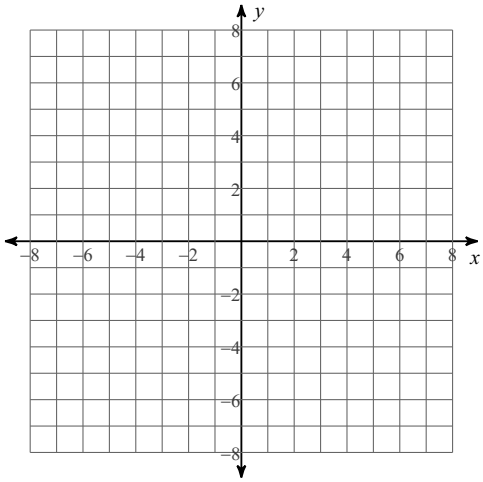
10) $f(-6)$

11) $f(-15)$

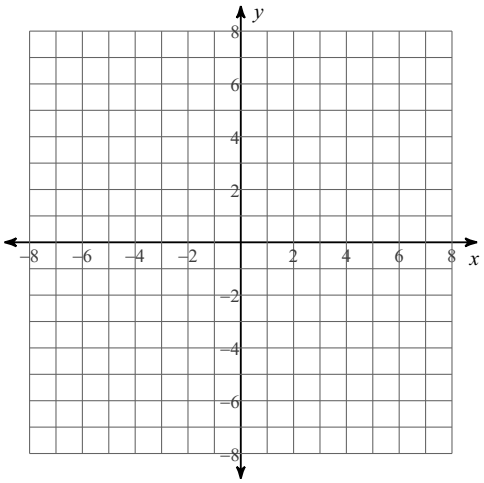
12) $f(2)$

Graph each piecewise function.

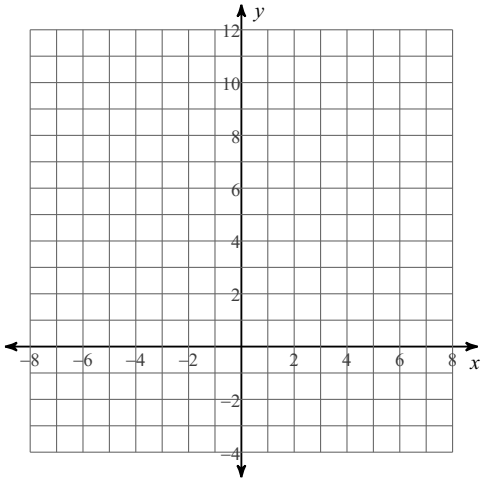
13) $f(x) = \begin{cases} 4x, & 0 \le x < 2 \\ -2x + 10, & 2 \le x < 5 \end{cases}$



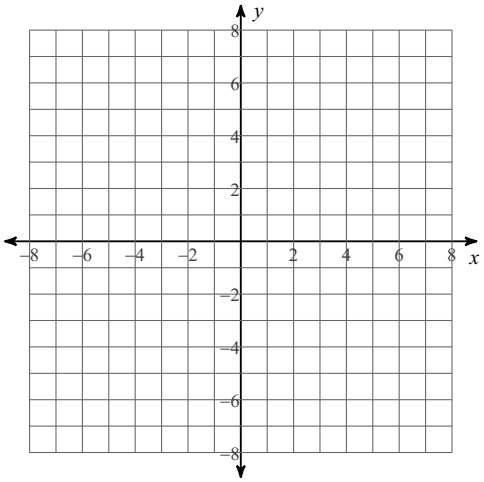
14) $f(x) = \begin{cases} 2x - 3, & x \le 0 \\ -\frac{1}{2}x + 5, & x > 0 \end{cases}$



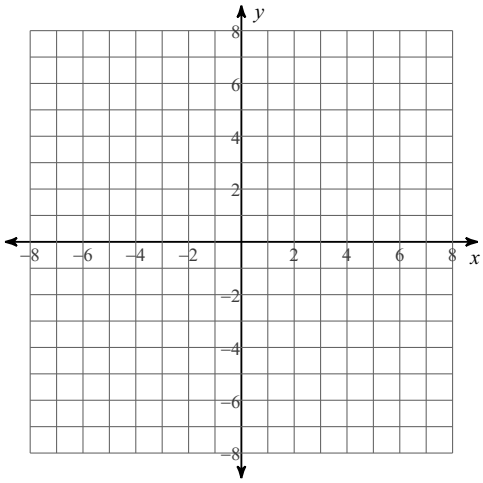
15) $f(x) = \begin{cases} \frac{3}{2}x + 4, & x < 2 \\ 2x + 4, & x \ge 2 \end{cases}$



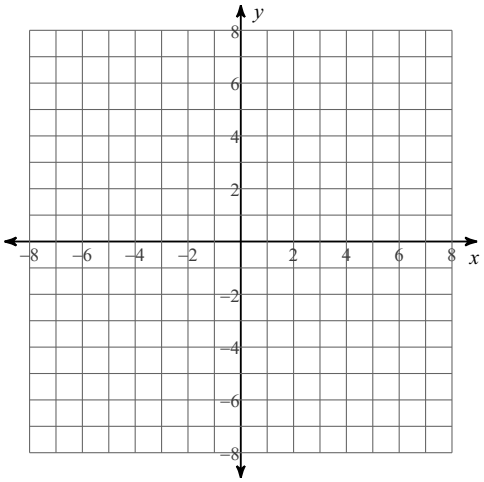
16) $f(x) = \begin{cases} 1, & x < 1 \\ 2x, & 1 \le x < 3 \\ -\frac{1}{3}x + 7, & x > 3 \end{cases}$



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

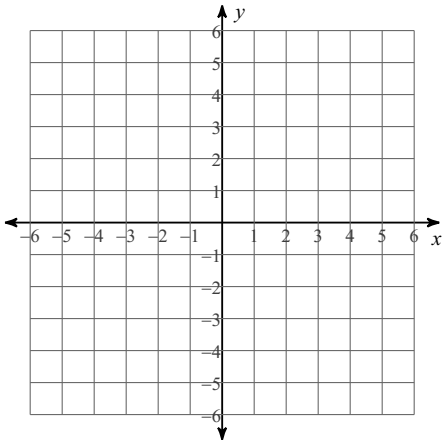


18) $f(x) = \begin{cases} \frac{1}{3}x - 5, & x < -3 \\ 2x + 3, & -3 \le x \le 2 \\ -\frac{5}{2}x + 3, & x > 2 \end{cases}$

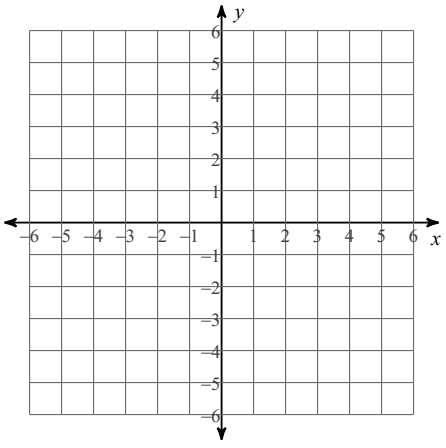


Graph each absolute value function. List the VERTEX, DOMAIN and RANGE.

19) $y = -3\left|x - 3\right| + 4$

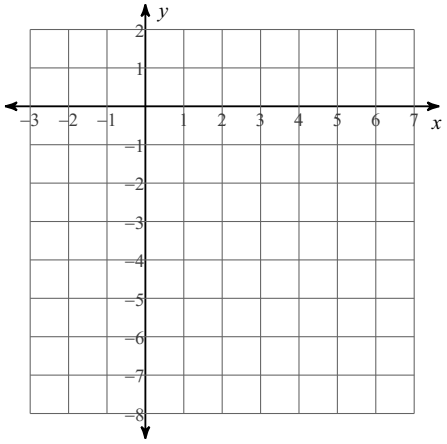


20) $y = 2\left|x - 1\right| - 2$

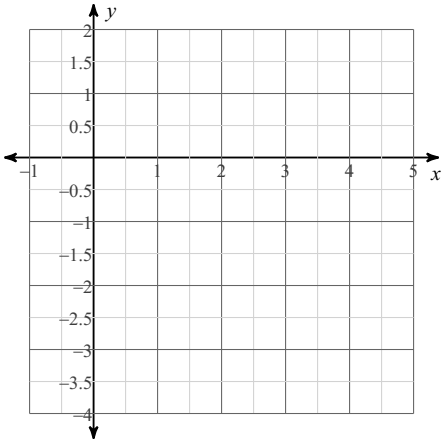


Graph each quadratic function. List the VERTEX, DOMAIN and RANGE.

21) $y = -2(x-3)^2 + 1$



22) $y = (x-1)^2 - 3$



Factor each completely.

23) $x^2 - 1$

24) $p^2 + 3p - 54$

25) $-4a^2 + 36a + 40$

26) $9x^2 - 16$

27) $6p^2 - 600$

28) $x^2 - 5x + 6$

Find the zeros by factoring.

29) $x^2 - 3x + 2 = 0$

30) $x^2 + 6x = 0$