

Piece-Wise Functions

Graph each of the following functions. Be sure to label all significant points.

$$1. \quad f_{(x)} = \begin{cases} 2x+1, & x \leq -1 \\ x^2-2, & x > -1 \end{cases}$$

$$2. \quad f_{(x)} = \begin{cases} x+3, & x < 0 \\ 3, & 0 < x \leq 2 \\ 2x-1, & x > 2 \end{cases}$$

$$3. \quad f_{(x)} = \begin{cases} x^2, & x > 0 \\ |x|, & x \leq 0 \end{cases}$$

$$4. \quad f_{(x)} = \begin{cases} (x-2)^2+3, & x > 2 \\ -(x-2)^2+3, & x < 2 \end{cases}$$

$$5. \quad f_{(x)} = \begin{cases} (x-4)^2+2, & x \geq 1 \\ x-3, & x < 1 \end{cases}$$

$$6. \quad f_{(x)} = \begin{cases} \sqrt{x+2}+1, & x > -2 \\ (x+2)^2+1, & x < -2 \end{cases}$$

$$7. \quad f_{(x)} = \begin{cases} 2x-3, & x > 3 \\ 2x-3, & x < 3 \end{cases}$$

$$8. \quad f_{(x)} = \begin{cases} -(x-5)^2+3, & x > 5 \\ 3, & -2 < x < 5 \\ |x+2|+3, & x < -2 \end{cases}$$

$$9. \quad f_{(x)} = \begin{cases} \frac{1}{2}x+2, & x \geq 4 \\ \frac{1}{2}x-1, & x \leq 4 \end{cases}$$

$$10. \quad f_{(x)} = \begin{cases} (x-3)^2+2, & x \geq 3 \\ -(x-3)^2+3, & x < 3 \end{cases}$$