Algebra 2 Piecewise Functions

SHOW ALL WORK on the worksheet

For $f(x) = \begin{cases} 4x - 3 \text{ if } x < 3 \\ 5x + 2 \text{ if } x \geq 3 \end{cases}$, find each

1. $f(-4)$ $-4 < 3$
$= 4(-4) - 3$
$= -16 - 3$
$= -19$

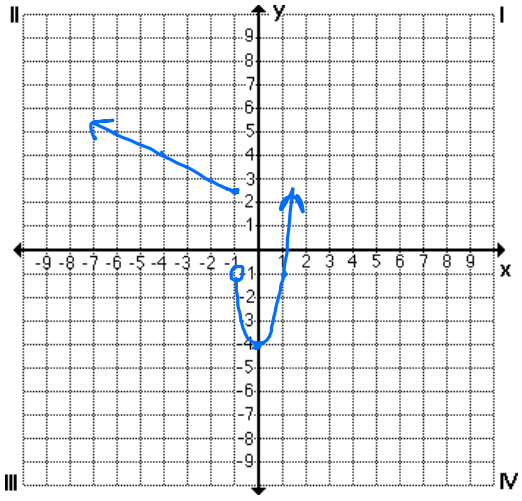
2. $f(5)$ $5 \geq 3$
$= 5(5) + 2$
$= 25 + 2$
$= 27$

3. $f(0)$ $0 < 3$
$= 4(0) - 3$
$= -3$

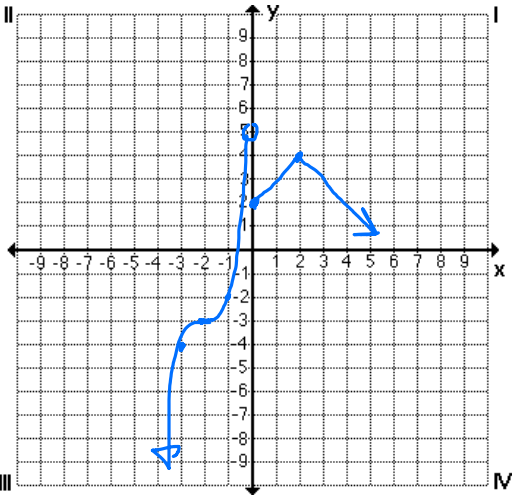
4. $f(3)$ $3 \geq 3$
$= 5(3) + 2$
$= 15 + 2$
$= 1$

Graph each function

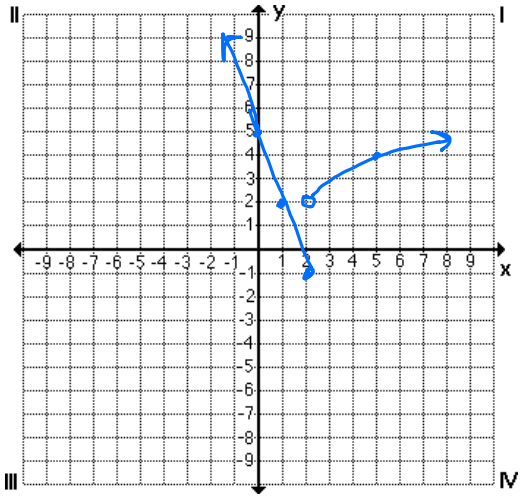
5. $f(x) = \begin{cases} -\frac{1}{2}x + 2 & \text{if } x \leq -1 \\ 3x^2 - 4 & \text{if } x > -1 \end{cases}$



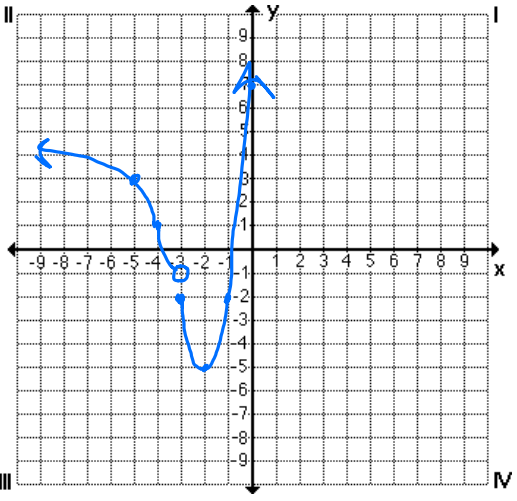
6. $h(x) = \begin{cases} (x+2)^3 - 3 & \text{if } x < 0 \\ -|x-2| + 4 & \text{if } x \geq 0 \end{cases}$



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



8. $f(x) = \begin{cases} -2\sqrt[3]{x+4} + 1 & \text{if } x < -3 \\ 3(x+2)^2 - 5 & \text{if } x \geq -3 \end{cases}$



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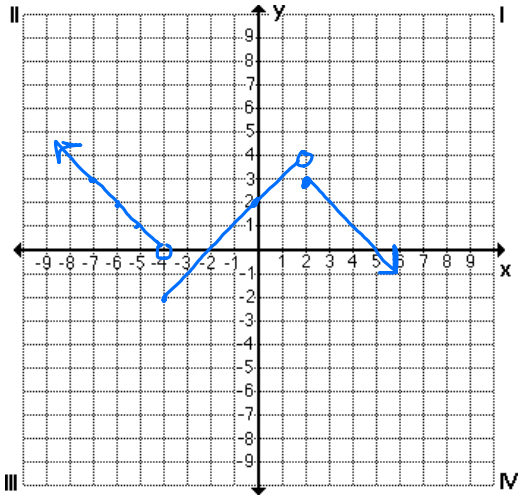
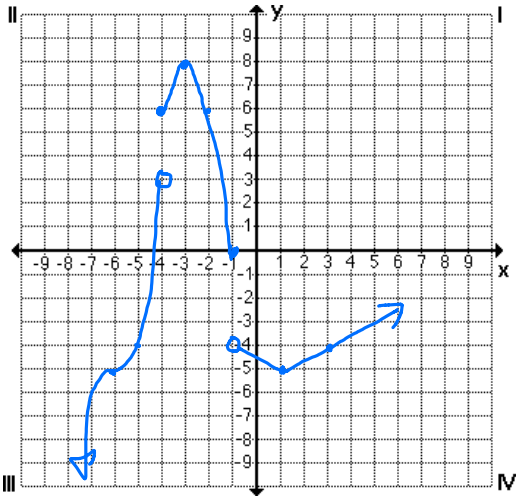
9. $g(x) = \begin{cases} -x - 4 & if\ x < -4 \\ x + 2 & if\ -4 \le x < 2 \\ -x + 5 & if\ x \ge 2 \end{cases}$



10. $m(x) = \begin{cases} (x+6)^3 - 5 & if\ x < -4 \\ -2(x+3)^2 + 8 & if\ -4 \le x \le -1 \\ \frac{1}{2}|x-1| - 5 & if\ x > -1 \end{cases}$



11. Write a piecewise function for the given graph:

$$f(x) = \begin{cases} -3 & \text{if } -5 \le x < -2 \\ 1 & \text{if } -2 \le x < 2 \\ 4 & \text{if } 2 \le x < 6 \end{cases}$$