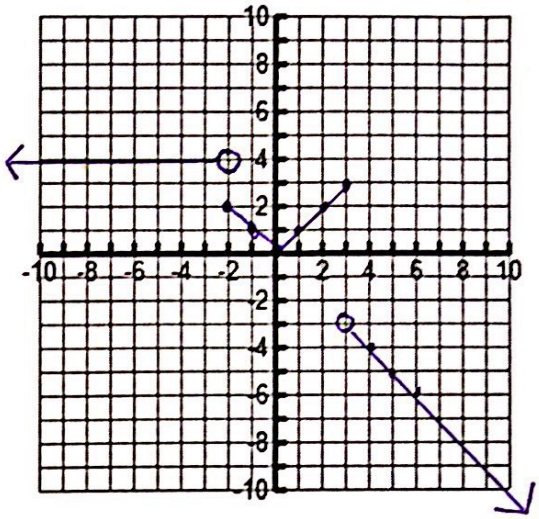
Piecewise Functions: Absolute Value – Day 2 CW Name: Key

Graph each piecewise function. You may use a table of values. Be sure your final graph passes the vertical line test.

1) $f(x) = \begin{cases} 4 & if \quad x < -2 \\ |x| & if \quad -2 \le x \le 3 \\ -x & if \quad x > 3 \end{cases}$



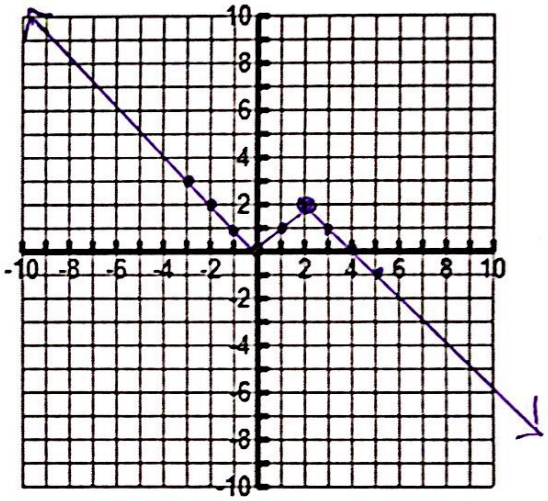
Domain: $(-\infty, +\infty)$

Range: $(-\infty, -3) \cup (0, 3) \cup y = 4$

Interval(s) of increasing: $(0, 3)$

Interval(s) of decreasing: $(-2, 0) \cup (3, +\infty)$

2) $f(x) = \begin{cases} |x| & if \quad x < 2 \\ -x + 4 & if \quad x \ge 2 \end{cases}$



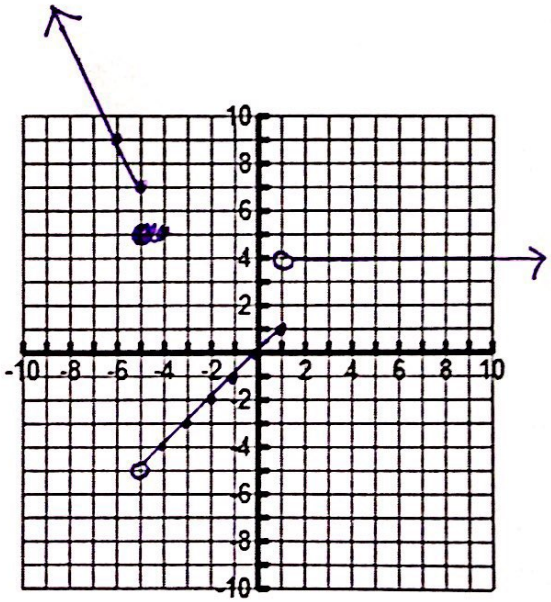
Domain: $(-\infty, +\infty)$

Range: $(-\infty, +\infty)$

Interval(s) of increasing: $(0, 2)$

Interval(s) of decreasing: $(-\infty, 0) \cup (2, +\infty)$

3) $f(x) = \begin{cases} |2x + 3| & if \quad x \le -5 \\ x & if \quad -5 < x \le 1 \\ 4 & if \quad x > 1 \end{cases}$



Domain: $(-\infty, +\infty)$

Range: $[-5, 1] \cup y = 4 \cup [7, +\infty)$

Interval(s) of increasing: $(-5, 1)$

Interval(s) of decreasing: $(-\infty, -5)$