Precalculus

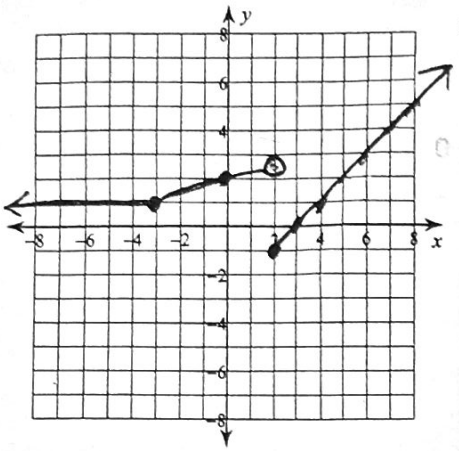
Name Key

Piecewise Functions

Date

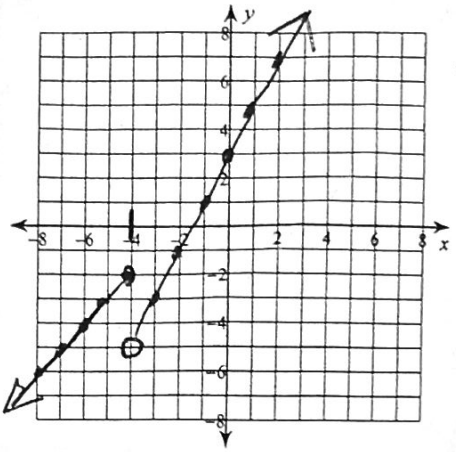
Sketch the graph of each function. Then state the domain and range.

1) $w(x) = \begin{cases} 1, & x \le -3 \\ \sqrt{x+4}, & -3 < x < 2 \\ |x| - 3, & x \ge 2 \end{cases}$



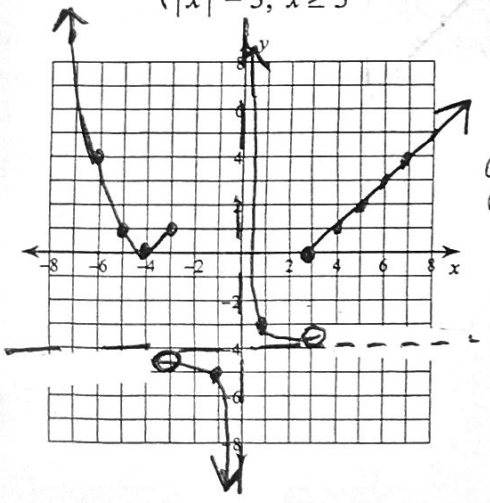
jump

2) $h(x) = \begin{cases} x + 2, & x \le -4 \\ 2x + 3, & x > -4 \end{cases}$



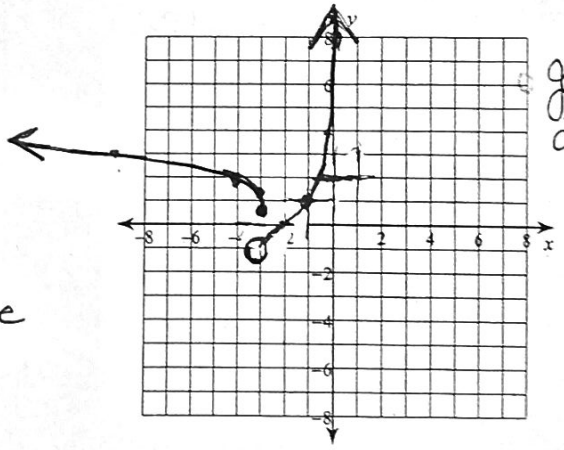
jump

3) $g(x) = \begin{cases} (x+4)^2, & x \le -3 \\ \frac{1}{x} - 4, & -3 < x < 3 \\ |x| - 3, & x \ge 3 \end{cases}$



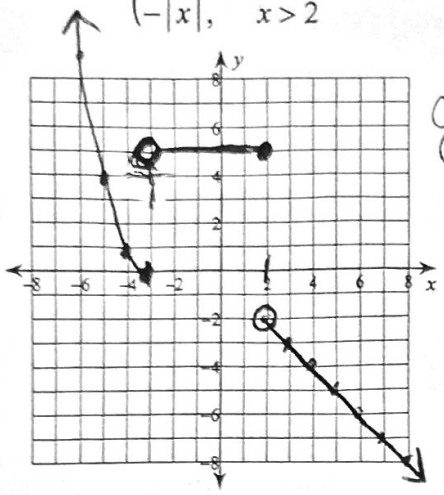
jump & Infinite

4) $h(x) = \begin{cases} \sqrt{-x}, & x \le -3 \\ (x+2)^3, & x > -3 \end{cases}$



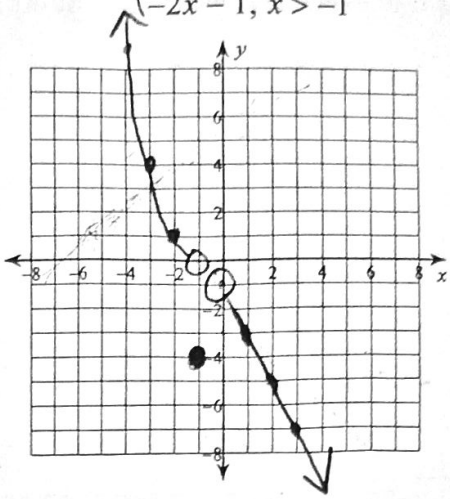
jump discontinuity

5) $g(x) = \begin{cases} (x+3)^2, & x \le -3 \\ 5, & -3 < x \le 2 \\ -|x|, & x > 2 \end{cases}$



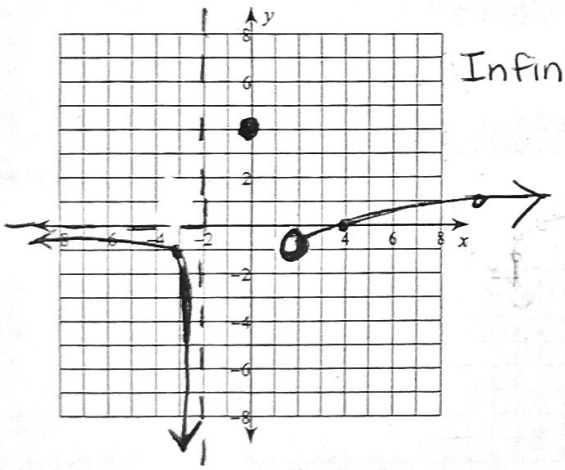
jump

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



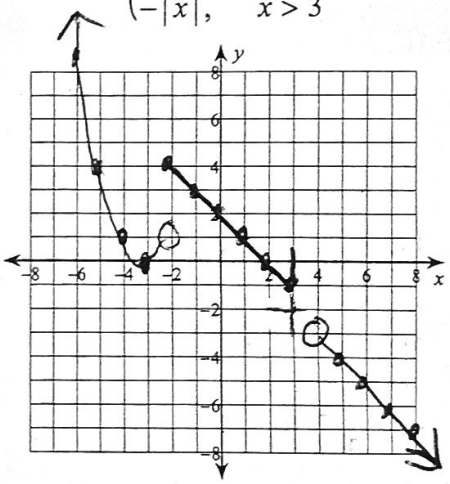
jump

7) $h(x) = \begin{cases} \dfrac{1}{x+2}, & x \le -2 \\ 4, & x = 0 \\ -2 + \sqrt{x}, & x > 2 \end{cases}$



Infinite

8) $h(x) = \begin{cases} (x+3)^2, & x < -2 \\ -x + 2, & -2 \le x \le 3 \\ -|x|, & x > 3 \end{cases}$



jump