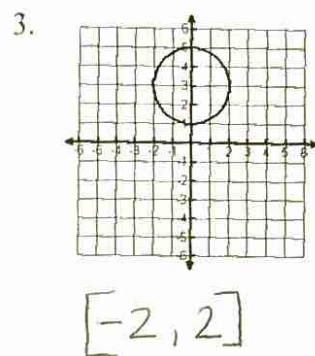
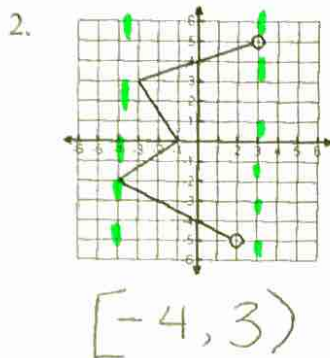
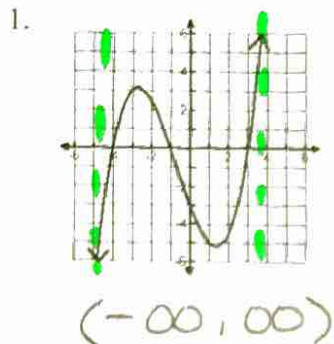


Domain Notes

Domain: x-values, low to high (L → R)

[] → closed circle () → arrows, open circle

Examples: Find the domain of the following



4. $y = 3x - 5$ $mx + b$
 $(-\infty, \infty)$

5. $y = \frac{10}{x+7}$ *can't divide by zero*
 \downarrow
 $0 = x + 7$
 $-7 \neq x$
 $(-\infty, -7) \cup (-7, \infty)$

6. $y = \sqrt{x-8}$ *inside ≥ 0
 $x - 8 \geq 0$
 $x \geq 8$
 $[8, \infty)$

More Function Notation

7. Find the value(s) of x such that $f(x) = 0$ given $f(x) = x^2 - 5x + 6$

$$\begin{array}{l} \uparrow \\ y = 0 \\ x? \end{array} \quad \begin{array}{l} 0 = x^2 - 5x + 6 \\ 0 = (x-2)(x-3) \\ \boxed{x=2}, \boxed{x=3} \end{array}$$

Find all the value(s) of x for which $f(x) = g(x)$

8. $f(x) = x^2 + 1$ and $g(x) = 3x - x^2$

$$\begin{aligned} x^2 + 1 &= 3x - x^2 \\ 2x^2 - 3x + 1 &= 0 \end{aligned}$$

$a \cdot c = 2 \cdot 1 = 2$
 $b = -3$
 $\left. \begin{array}{l} -2 \\ -1 \end{array} \right\} -4$
 $2x^2 - 2x - x + 1 = 0$
 $2x(x-1) - 1(x-1) = 0$
 $(2x-1)(x-1) = 0$
 $\boxed{x = 1/2, x = 1}$

9. $f(x) = x^2 - 1$ and $g(x) = -x^2 + x + 2$

$$\begin{aligned} x^2 - 1 &= -x^2 + x + 2 \\ 2x^2 - x - 3 &= 0 \end{aligned}$$

$a \cdot c = -6 \cdot 2 = -12$
 $b = -1$
 $\left. \begin{array}{l} -3 \\ 4 \end{array} \right\} -3$
 $2x^2 - 3x + 2x - 3 = 0$
 $x(2x-3) + 1(2x-3) = 0$
 $(x+1)(2x-3) = 0$
 $\boxed{x = -1, 3/2}$