

## Domain and Range

Find the ranges for each of these functions and their domains:

(a)  $f(x) = 5x + 1$   $x = \{1, 2, 3\}$

(b)  $g(x) = x^2 - 3$   $x = \{3, 4, 5\}$

(c)  $h(x) = \sqrt{2x + 1}$   $x = \{2, 4, 12\}$

(a)  $f(x) = \{6, 11, 16\}$

(b)  $g(x) = \{6, 13, 22\}$

(c)  $h(x) = \{\sqrt{5}, 3, 5\}$

The domain is  $\{1, 2, 3, 4\}$ . Find the ranges of these functions:

(d)  $f: x \rightarrow x + 9$

(e)  $g: x \rightarrow 2x^2$

(f)  $h: x \rightarrow \frac{x}{x+1}$

(d)  $f(x) = \{10, 11, 12, 13\}$

(e)  $g(x) = \{2, 8, 18, 32\}$

(f)  $h(x) = \{\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}\}$

What value of  $x$  must be excluded from the domains for the following functions?

(g)  $f(x) = \frac{3}{x}$

(h)  $g(x) = \frac{x}{x-2}$

(i)  $h(x) = \frac{x+1}{x+2}$

(g)  $x \neq 0$

(h)  $x \neq 2$

(i)  $x \neq -2$

What values of  $x$  must be excluded from the domains for the following functions?

(j)  $f: x \rightarrow \sqrt{x}$

(k)  $g: x \rightarrow \sqrt{x-3}$

(l)  $h: x \rightarrow \sqrt{x+2}$

(j)  $x < 0$

(k)  $x < 3$

(l)  $x < -2$

What values of  $x$  must be excluded from the domains for the following functions?

(m)  $f(x) = \frac{2}{x-1} + \frac{3}{x+5}$

(n)  $g(x) = \sqrt{2x-1}$

(m)  $x \neq 1, x \neq -5$

(n)  $x < \frac{1}{2}$