

# Pre-Calculus Sec. 1.7: Domain

## 2 Ways to Find the Domain of a Function

1) Graphically: Use the X-axis and the graph

1) Algebraically:

$$\frac{1}{f(x)}, \quad f(x) \neq 0$$

a) **excluding** any #'s that make the denominator of the equation **zero**.

$$\sqrt{f(x)}, \quad f(x) \geq 0$$

b) **excluding** any #'s that result in the even root equation **negative**.

$$\log_b f(x), \quad f(x) > 0$$

c) **excluding** any #'s that result in the log equation **zero** or **negative**.

Ex. 1: Find the domain of each relation. Express your answers in both *set* and *interval* notations.

**a)**  $f(x) = 4x^2 - 3x + 1$

**b)**  $g(x) = \frac{3}{x - 4}$

$$c) g(x) = \sqrt{2x - 3}$$

$$d) r(x) = \frac{2x + 1}{\sqrt{x - 3}}$$

$$e) p(x) = \frac{\sqrt{x-2}}{x-5}$$

$$f) q(x) = \log(x+2) - 5$$

$$g) k(x) = 3^{1-x} + 2$$

$$h) q(x) = \frac{3}{x^2 + 4}$$

$$i) f(x) = \sqrt{9 - x^2}$$

$$j) q(x) = \sqrt{x^2 - 25}$$

$$k) g(x) = \sqrt[4]{x^4 - 8x}$$