

FIND THE DOMAIN

$$f(x) = \frac{x}{x^2 + 2x - 3}$$

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

$$(-\infty, -3) \cup (-3, 1) \cup (1, \infty)$$

$$g(x) = \sqrt{\frac{1}{2}x - 4}$$

$$\frac{1}{2}x - 4 \geq 0$$

$$\frac{1}{2}x \geq 4$$

$$x \geq 8$$

$$[8, \infty)$$

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

$$x^3 - 2x^2 + x = 0$$

$$x(x^2 - 2x + 1) = 0$$

$$x = 0$$

$$x^2 - 2x + 1 = 0$$

$$(x-1)(x-1) = 0$$

$$x = 1$$

$$(-\infty, 0) \cup (0, 1) \cup (1, \infty)$$