

Review Chapter 1

Search and Rescue 1.1-1.4

Find the domain of the function algebraically

$$f(x) = \frac{\sqrt{2-x}}{(x-6)(x^2-4)}$$

Find the domain of the function algebraically

$$f(x) = \frac{3x - 5}{(x + 1)(x - 9)}$$

Determine any vertical asymptotes.

$$f(x) = \frac{5}{x^2 - 9x}$$

Determine any horizontal asymptotes.

$$f(x) = \frac{x}{x^2 - 6x}$$

Determine whether or not $x = 0$ is a removable (Hole) or non-removable (Vertical asymptote) discontinuity.

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

Determine algebraically whether the function is even, odd, or neither.

$$A) f(x) = \frac{1}{5x^2 - 2}$$

Determine algebraically whether the function is even, odd, or neither.

$$A) f(x) = \frac{1}{5x^3 + x}$$

Determine the horizontal asymptotes

$$f(x) = \frac{-6x^2 + 2}{x^2 - 2x + 1}$$

Determine the horizontal asymptotes

$$f(x) = \frac{6x^3 + 2}{x^2 - 2x + 1}$$

Determine the vertical asymptotes

$$f(x) = \frac{6x^3 + 2}{x^2 - 2x - 3}$$

Identify which of the twelve basic functions increasing on the functions entire domain.

$$y = x$$

$$y = \ln x$$

$$y = x^2$$

$$y = \sin x$$

$$y = x^3$$

$$y = \cos x$$

$$y = \frac{1}{x}$$

$$y = |x|$$

$$y = \sqrt{x}$$

$$y = \text{int}(x)$$

$$y = e^x$$

$$y = \frac{1}{1 + e^{-x}}$$

Identify which of the twelve basic functions have at least one horizontal asymptote

$$y = x$$

$$y = \ln x$$

$$y = x^2$$

$$y = \sin x$$

$$y = x^3$$

$$y = \cos x$$

$$y = \frac{1}{x}$$

$$y = |x|$$

$$y = \sqrt{x}$$

$$y = \text{int}(x)$$

$$y = e^x$$

$$y = \frac{1}{1 + e^{-x}}$$

Given the functions below find $f(g(4))$

$$f(x) = x^2 + 5x \quad g(x) = x - 2$$

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Given the functions below find $g(f(x))$

$$f(x) = x^2 + 5x \quad g(x) = x - 2$$

Given the functions below find $f^{-1}(x)$

$$f(x) = x^2 + 5$$

Given the functions below find $f^{-1}(x)$

$$f(x) = \sqrt[3]{x-4}$$