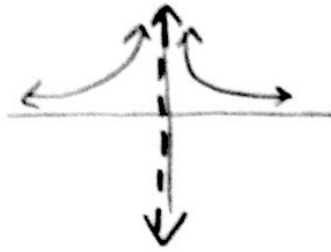


$$c) \lim_{x \rightarrow 0} \frac{1}{x^2}$$



$$\lim_{x \rightarrow 0^+} \frac{1}{x^2} = \infty$$

$$\lim_{x \rightarrow 0^-} \frac{1}{x^2} = \infty$$

DNE

3) Algebraically:

$$a) \lim_{x \rightarrow 2} 4x^2 + 3$$

$$= 4(2)^2 + 3$$

$$= \boxed{19}$$

$$b) \lim_{x \rightarrow 3} \frac{\sqrt{x+1}}{x-4}$$

$$\frac{\sqrt{3+1}}{3-4} = \frac{2}{-1} = \boxed{-2}$$

$$c) \lim_{x \rightarrow -3} \frac{3-x}{x^2-9}$$

$$\frac{3-(-3)}{(-3)^2-9} = \frac{6}{0} \quad \text{No!}$$

$$\frac{-(x-3)}{(x+3)(x-3)} = \frac{-1}{x+3} = \frac{-1}{-3+3} = \frac{-1}{0} \quad \boxed{\text{DNE}}$$

VA @ $x = -3$

$$d) \lim_{x \rightarrow 1} \frac{x^3-1}{x-1} = \frac{1-1}{1-1} = \frac{0}{0} \rightarrow \text{indeterminate}$$

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

$$1^2 + 1 + 1 = \boxed{3}$$