

Find the limit of the functions that involve e^x

$$3. \lim_{x \rightarrow \infty} \frac{e^{-x}}{x}$$

$$\lim_{x \rightarrow -\infty} \frac{e^{-x}}{x}$$

$$A) \lim_{x \rightarrow \infty} \frac{e^{x+2x}}{2x} =$$

$$B) \lim_{x \rightarrow -\infty} \frac{e^{x+2x}}{2x} =$$

Find the limit of the functions that involve sine and cosine

$$C) \lim_{x \rightarrow -\infty} \frac{x^3 + \cos x}{x^3}$$

$$D) \lim_{x \rightarrow +\infty} \frac{x^3 + \cos x}{x^3}$$

$$E) \lim_{x \rightarrow \infty} \sin\left(\frac{1}{x}\right)$$

$$F) \lim_{x \rightarrow \infty} \frac{\sin\left(\frac{1}{x}\right)}{1 + \frac{1}{x}}$$

Find the limit of the functions that involve absolute value

$$8A) \lim_{x \rightarrow \infty} \frac{5x-2}{|x|-1}$$

$$8B) \lim_{x \rightarrow -\infty} \frac{5x-2}{|x|-1}$$

53A) Find the limit of $f(x)$ as

a) $x \rightarrow -\infty$, b) $x \rightarrow \infty$, c) $x \rightarrow 0^+$, d) $x \rightarrow 0^-$ e) $x \rightarrow 1^-$ f) $x \rightarrow 1^+$

$\lim_{x \rightarrow -\infty} \frac{3x-1}{2x+5} = \frac{3}{2}$

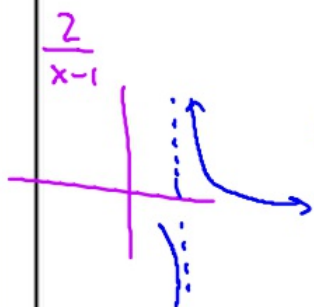
$\lim_{x \rightarrow \infty} \frac{2}{x-1} = 0$

$\frac{2}{0^-} = -\infty$

$\frac{-1}{5}$

$\frac{2}{0} = \infty$

$\frac{2}{0} = \infty$



* If $f(x) = \begin{cases} \frac{3x-1}{2x+5} & x < 0 \\ \frac{2}{x-1} & x \geq 0 \end{cases}$ Left Right

$x = .9$ $y = \frac{2}{.9-1}$
 $x = 1.1$ $y = \frac{2}{1.1-1}$

55A) Sketch a graph of a function that satisfies the following conditions.

$(0, 2)$

$\lim_{x \rightarrow 0} f(x) = 2$

V.A $x = -2$

$\lim_{x \rightarrow -2^-} f(x) = \infty$

$\lim_{x \rightarrow -2^+} f(x) = -\infty$

H.A $y = 2$

$\lim_{x \rightarrow -\infty} f(x) = 2$

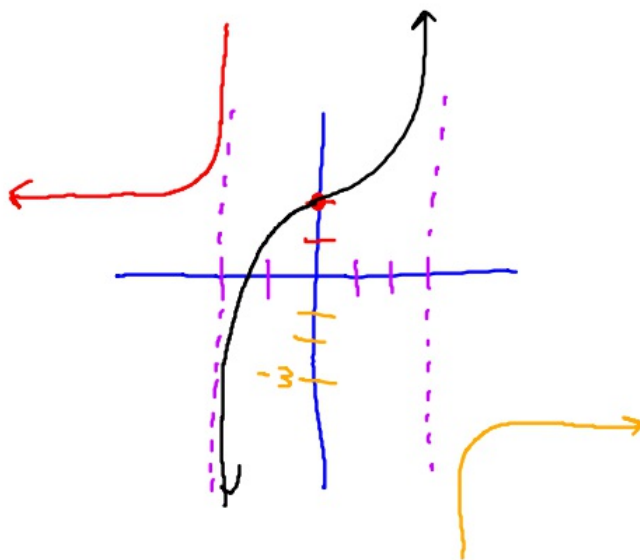
H.A $y = -3$

$\lim_{x \rightarrow \infty} f(x) = -3$

V.A $x = 3$

$\lim_{x \rightarrow 3^-} f(x) = \infty$

$\lim_{x \rightarrow 3^+} f(x) = -\infty$



Find the limit of the functions using the sandwich theorem

Example 9 (p.65)

$$\lim_{x \rightarrow 0} \left[x^2 \sin\left(\frac{1}{x}\right) \right] = 0$$

$$0^2 \sin\left(\frac{1}{0}\right)$$

p.76 $0 \times (\text{Between } -1 \text{ and } 1)$

$$10) \lim_{x \rightarrow -\infty} \frac{1 - \cos x}{x^2} = 0$$

$$12) \lim_{x \rightarrow \infty} \frac{\sin(x^2)}{x} = \frac{\text{Between } -1 \text{ and } 1}{x} = 0$$

P.76 53-56, 61, 64

P.76 1, 9, 11, 23

P.68 59-62