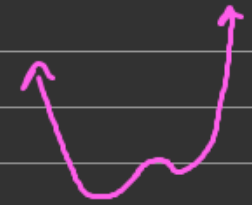


Limits involving infinity 5/22

1/2

$n > 0$

$$\lim_{x \rightarrow \infty} x^n = \infty$$


$$\text{Ex)} \lim_{x \rightarrow \infty} (x^3 - 2x^2 + 5x - 1) = -\infty$$

$$\lim_{x \rightarrow -\infty} x^n = \infty$$

* n is even

$$\text{Ex)} \lim_{x \rightarrow -\infty} (4 + 3x - x^2) = -\infty$$
$$(-x^2 + 3x + 4) = -\infty$$

$$\lim_{x \rightarrow -\infty} x^n = -\infty$$

* n is odd

$$\text{Ex)} \lim_{x \rightarrow \infty} (-x^3 - 4x^2 + 9) = -\infty$$


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

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

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

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

$$\text{Ex) } \lim_{x \rightarrow \infty} \frac{4x+5}{3x+2} = \frac{4}{3}$$

$$\text{Ex) } \lim_{x \rightarrow \infty} \frac{6x^2 - x}{3x^3 + 1} = 0$$

$$\text{Ex) } \lim_{x \rightarrow \infty} \frac{5x^4}{8x^3 + 3x + 1} = \infty$$

$$\lim_{x \rightarrow \infty} \frac{5}{x-10} = 0$$

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

$$\lim_{x \rightarrow \infty} \frac{7x^3 - 3x^2 + 1}{2x^3 + 4x} = \frac{7}{2}$$

p. 754 : 23 - 45 odds

64, 65, 66