

## Practise Questions on Limits.

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

$$2) \lim_{x \rightarrow 0} \frac{x^3 + x^2}{2x^3 - 7x^2} ?$$

$$3) \lim_{x \rightarrow 3} \frac{2x^2 - 7x + 3}{5x^2 - 12x - 9} ?$$

$$4) \lim_{x \rightarrow 0} \frac{e^x - \left(1 + x + \frac{x^2}{2}\right)}{x^3} ?$$

$$5) \lim_{x \rightarrow 0} \frac{\sin\left[\frac{2}{3}x\right]}{x} ?$$

$$6) \lim_{n \rightarrow \infty} \left[1 - \frac{1}{n}\right]^{2n}$$

$$7) \lim_{n \rightarrow \infty} \frac{1 + 2 + 3 + \dots + n}{n^2}$$

$$8) \lim_{x \rightarrow 0} \frac{\cos 3x - \cos 4x}{x^2} ?$$

$$9) \lim_{x \rightarrow 0} \frac{1 - \cos 5x}{1 - \cos 7x} ?$$

$$10) \lim_{x \rightarrow 4} \frac{\sin(x-4)}{x-4} ?$$

$$11) \lim_{x \rightarrow 1} \frac{x^7 - 2x^5 + 1}{x^3 - 3x^2 + 2} ?$$

$$12) \lim_{x \rightarrow 0} \left(\frac{\tan x}{x^2 - x}\right) ?$$