

Short Questions

Write the short answers of the following:

- Q.1: If $f(x) = 3x^2 - 7x + 4$, then find $f\left(\frac{1}{x}\right)$
- Q.2: If $f(x) = 2x\sqrt{1-x^2}$, find $f(\sin \theta)$
- Q.3: If $f(x) = \frac{2x}{1+x^2}$, Find $f(\tan A)$.
- Q.4: If $f(x) = \frac{1}{1-x}$, Then find $f[f(5)]$
- Q.5: Show that the function $f(x) = x^4 - 7x^2 + 7$ is even function of x .
- Q.6: If $\lim_{x \rightarrow 2} \frac{x^n - 2^n}{x - 2} = 80$, Find the value of n
- Q.7: Find the value of $\lim_{x \rightarrow 7} \frac{x^3 - 8}{x^2 - 3x + 2}$
- Q.8: Find $\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - 1}{x}$
- Q.9: $\lim_{x \rightarrow 3} \frac{x-3}{x^2-9}$
- Q.10: $\lim_{x \rightarrow 1} \frac{x^3-1}{x-1}$
- Q.11: Find $\lim_{x \rightarrow \infty} \frac{(2x-3)(3x-4)}{(4x-5)(5x-6)}$
- Q.12: Find $\lim_{x \rightarrow \infty} \left(1 - \frac{2x}{3}\right)^{1/x}$
- Q.13: Find $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n+1}\right)^n$
- Q.14: Find $\lim_{x \rightarrow 0} \frac{\sin x^\circ}{x}$
- Q.15: Find the value of $\lim_{x \rightarrow 0} \left(1 + \frac{x}{3}\right)^{1/x}$

Answers

- Q.1: $\frac{3-7x+4x^2}{x^2}$ Q.2: $\sin 2\theta$ (Ans.) Q.3: $\sin 2A$ Q.4: $\frac{4}{5}$
- Q.6: $n = 5$ Q.7: 12 Q.8: $\frac{1}{2}$ Q.9: $1/6$ Q.10: 3
- Q.11: $\frac{3}{10}$ Q.12: $e^{-2/3}$ Q.13: e Q.14: $\frac{\pi}{180}$ Q.15: $e^{1/3}$