

Assignment - Trigonometric Limits

Date : _____

Compute each of the following limits.

1. $\lim_{x \rightarrow 0} \frac{\sin 5x}{x}$

2. $\lim_{x \rightarrow 0} \frac{2 \sin x \cos x}{x}$

3. $\lim_{\theta \rightarrow 0} \frac{\cos 3\theta \sin 3\theta}{\theta}$

4. $\lim_{x \rightarrow 0} \frac{\sin 2x + \sin 4x}{x}$

5. $\lim_{\theta \rightarrow 0} \frac{\tan 4\theta}{5\theta}$

6. $\lim_{x \rightarrow 0} \frac{\sin 4x}{\sin 3x}$

7. $\lim_{\theta \rightarrow 0} \frac{\theta}{\sin 3\theta}$

8. $\lim_{x \rightarrow 0} \frac{\sin^2 x}{3x^2}$

9. $\lim_{\theta \rightarrow 0} \frac{\sin(\theta^2)}{\theta \tan \theta}$

10. $\lim_{x \rightarrow 0} \frac{\tan 6x}{3x}$

11. $\lim_{x \rightarrow 0} \frac{\sin x \tan x}{x^2}$

12. $\lim_{x \rightarrow 0} \frac{\sin 2x \tan 3x}{x^2}$

13. $\lim_{\theta \rightarrow 0} \frac{\theta \sin 2\theta}{2 - 2 \cos^2 \theta}$

14. $\lim_{x \rightarrow 0} \frac{x}{\sin 2x}$

15. $\lim_{x \rightarrow 0} \frac{\tan x}{\tan 4x}$

16. $\lim_{x \rightarrow 0} \frac{6x}{\sin 4x + \sin 3x}$

17. $\lim_{\theta \rightarrow 0} \frac{2\theta^2}{1 - \cos \theta}$

18. $\lim_{x \rightarrow \pi/2} \frac{\sin x - 1}{x - \frac{\pi}{2}}$

19. $\lim_{\theta \rightarrow 0} \frac{\theta \sin \theta}{1 - \cos \theta}$



Answer :

- 1.) 5 2.) 2 3.) 3 4.) 6 5.) $\frac{4}{5}$ 6.) $\frac{4}{3}$ 7.) $\frac{1}{3}$ 8.) $\frac{1}{3}$ 9.) 1 10.) 2
- 11.) 1 12.) 6 13.) 1 14.) $\frac{1}{2}$ 15.) $\frac{1}{4}$ 16.) $\frac{6}{7}$ 17.) 4 18.) 0 19.) 2

