

Assignment 7

1) $\lim_{x \rightarrow \frac{\pi}{2}} (2x \tan x - \pi \sec x) =$

- a) -2
- b) -1
- c) 0
- d) 1

Answer: a)

2) $\lim_{x \rightarrow \frac{\pi}{2}} (\sin x)^{\tan^2 x} =$

- a) e^{-1}
- b) $e^{-\frac{1}{2}}$
- c) $e^{\frac{1}{2}}$
- d) e

Answer: b)

3) $\lim_{x \rightarrow \frac{\pi}{2}} \frac{a^{\sin x} - a}{\ln \sin x} =$

- a) a
- b) $\ln a$
- c) $a \ln a$
- d) None of the above

Answer: c)

4) $\lim_{x \rightarrow 0} (\ln \cot x)^{\tan x} =$

- a) 1
- b) 0
- c) -1
- d) Does not exist

Answer: a)

5) $\lim_{x \rightarrow 0^+} \frac{\sin x}{\sqrt{x}} =$

- a) 0
- b) 1
- c) Does not exist
- d) None of the above

Answer: a)

6) $\lim_{x \rightarrow 0} \frac{1}{x} \sin \frac{1}{x} =$

- a) 0
- b) 1
- c) Does not exist
- d) None of the above

Answer: c)

7) $\lim_{x \rightarrow -\infty} (x^2 \operatorname{sgn}(\cos x)) =$

- a) -1
- b) 0
- c) 1
- d) Does not exist

Answer: d)

8) $\lim_{x \rightarrow 1} \left[\frac{x}{x-1} - \frac{1}{\ln x} \right] =$

- a) $\frac{1}{4}$
- b) $\frac{1}{2}$
- c) 1
- d) 2

Answer: b)

9) $\lim_{x \rightarrow 0} x^{\frac{1}{\ln(e^x - 1)}} =$

- a) e
- b) $\frac{e}{2}$
- c) e^2
- d) None of the above

Answer: a)

10) $\lim_{x \rightarrow \frac{\pi}{2}} (\cos x)^{\frac{\pi-x}{2}}$

- a) -1
- b) 0
- c) 1
- d) None of the above

Answer: c)