

13 Lecture - MTH101

Important Mcqs

What is the limit of the sine function as x approaches infinity?

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

Answer: c) does not exist

What is the limit of the cosine function as x approaches $\pi/2$?

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

Answer: c) does not exist

What is the derivative of the function $f(x) = \cos(x) - 2\sin(x)$?

- a) $-\cos(x) - 2\cos(x)$
- b) $-\sin(x) - 2\cos(x)$
- c) $\sin(x) - 2\cos(x)$
- d) $-\sin(x) + 2\cos(x)$

Answer: b) $-\sin(x) - 2\cos(x)$

Which of the following trigonometric functions has a vertical asymptote at $x = \pi/2$?

- a) sine
- b) cosine

- c) tangent
- d) none of the above

Answer: c) tangent

What is the limit of the tangent function as x approaches $\pi/2$ from the left?

- a) $-\infty$
- b) ∞
- c) does not exist
- d) 0

Answer: a) $-\infty$

Which of the following trigonometric functions is continuous on the entire real line?

- a) sine
- b) cosine
- c) tangent
- d) none of the above

Answer: d) none of the above

What is the derivative of the function $f(x) = \sin(x)\cos(x)$?

- a) $\cos^2(x)$
- b) $-\cos^2(x)$
- c) $2\sin(x)\cos(x)$
- d) $-2\sin(x)\cos(x)$

Answer: c) $2\sin(x)\cos(x)$

Which of the following functions is not continuous at $x = 0$?

- a) $\sin(x)/x$
- b) $\cos(x)/x$
- c) $\tan(x)/x$

d) all of the above are continuous at $x = 0$

Answer: c) $\tan(x)/x$

What is the limit of the function $f(x) = \sin(1/x)$ as x approaches 0?

a) 0

b) does not exist

c) 1

d) -1

Answer: b) does not exist

What is the maximum value of the function $f(x) = 2\sin(x) + 3\cos(x)$ on the interval $[0, 2\pi]$?

a) 5

b) -5

c) 2

d) 3

Answer: a) 5