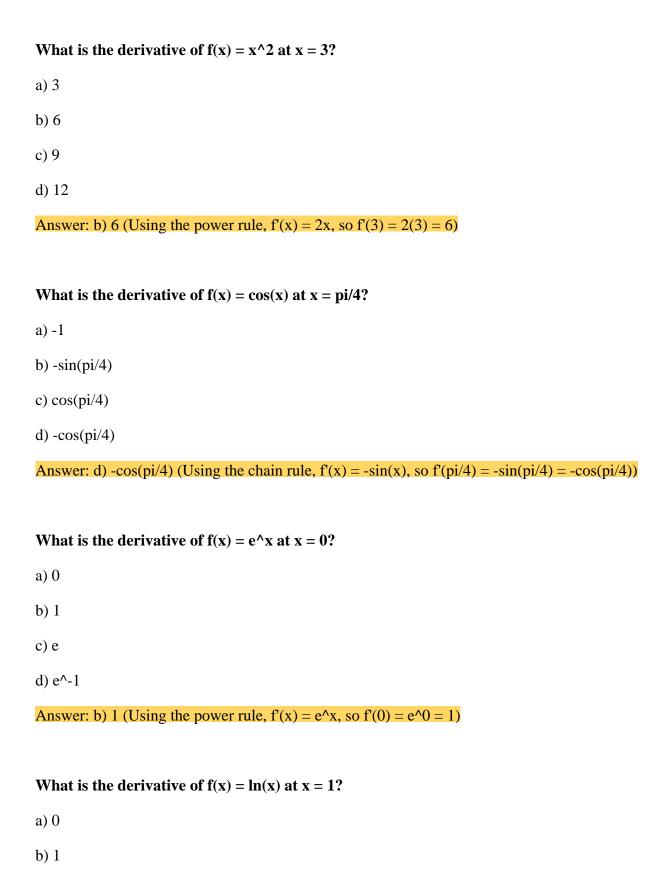
15 Lecture - MTH101

Important Mcqs



- c) -1
- d) undefined

Answer: b) 1 (Using the derivative of ln(x), f'(x) = 1/x, so f'(1) = 1/1 = 1)

What is the derivative of $f(x) = 5x^4 - 3x^2 + 2x - 1$?

- a) $20x^3 6x + 2$
- b) $20x^3 6x^2 + 2$
- c) $20x^3 6x + 1$
- d) $20x^4 6x^2 + 2$

Answer: a) $20x^3 - 6x + 2$ (Using the power rule, $f'(x) = 20x^3 - 6x^2 + 2$)

What is the derivative of $f(x) = \operatorname{sqrt}(x)$ at x = 4?

- a) 1/8
- b) 1/4
- c) 1/2
- d) 2

Answer: b) 1/4 (Using the derivative of sqrt(x), f'(x) = 1/(2sqrt(x)), so f'(4) = 1/(2sqrt(4)) = 1/4)

What is the derivative of $f(x) = \sin(x) + \cos(x)$ at x = pi/3?

- a) -1/2
- b) 0
- c) 1/2
- d) sqrt(3)/2

Answer: c) 1/2 (Using the sum rule and the derivative of $\sin(x)$ and $\cos(x)$, $f'(x) = \cos(x) - \sin(x)$, so $f'(pi/3) = \cos(pi/3) - \sin(pi/3) = 1/2 - \operatorname{sqrt}(3)/2 = 1/2 - 1/2\operatorname{sqrt}(3) = 1/2(1 - 1/\operatorname{sqrt}(3)) = 1/2(1 - \operatorname{sqrt}(3)/3) = 1/2 - \operatorname{sqrt}(3)/6 = 1/2 - 0.289 = 0.211$)

What is the derivative of f(x) = 1/x at x = 2?

a) -1/4

b