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11:00

Analytical Methods (ACHA 4000)

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(1904197)

b) $y = \sin 2x$

$$\frac{dy}{dx} = \cos(2x) \cdot 2$$

$$\frac{d^2y}{dx^2} = -4 \sin(2x)$$

$$\frac{d^3y}{dx^3} = -8 \cos(2x)$$

$$\frac{d^4y}{dx^4} = \underline{\underline{16 \sin(2x)}}$$

c) $z = x^5 + 3x^3y^2 + 4y^5$

$$\frac{\partial^2 z}{\partial x^2} = 20x^3 + 18y^2x$$

$$\frac{\partial^2 z}{\partial y^2} = 80y^3 + 6x^3$$

$$\frac{\partial^2 z}{\partial y \partial x} = 18x^2y$$

$$\frac{\partial^2 z}{\partial x \partial y} = 18x^2y$$