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vii) $y = \sqrt{3x^3 + 2x + 5}$

$$y = (3x^3 + 2x + 5)^{0.5}$$

$$\frac{dy}{dx} = 0.5(3x^3 + 2x + 5)^{-0.5}$$

$$= 0.5(3x^3 + 2x + 5)^{-0.5} (9x^2 + 2)$$

b) $y = \sin x$

$$y = 1 \cos x$$

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

$$\frac{dz}{dx} = 5(23x^2)y + (6x) + 4y^4$$

$$= 15x^2y + 24xy^4$$

$$\frac{dz}{dy} = 5x^3(2y) + 3x^2 + 4(4y^3)$$

$$= 5x^32y + 3x^2 + 16y^3$$