

Differentials

1. Find the total differential
(Similar to p.923 #1-10)

$$z = 3x^5 y^2$$

total differential

$$dz = f_x(x, y)dx + f_y(x, y)dy$$

2. Find the total differential
(Similar to p.923 #1-10)

$$z = y \tan x - x \cos y$$

total differential

$$dz = f_x(x, y)dx + f_y(x, y)dy$$

3. Find the total differential
(Similar to p.923 #1-10)

$$z = e^{3x^2 - 2x + 5} \sec y$$

total differential

$$dz = f_x(x, y)dx + f_y(x, y)dy$$

4. Evaluate $f(3, 1)$ and $f(3.1, 1.05)$ and calculate Δz ,
and (b) use the total differential dz to approximate Δz
(Similar to p.923 #11-16)

$$f(x, y) = x^3 - 7y^2$$

Formula

$$\Delta z = f_x(x_o, y_o)\Delta x + f_y(x_o, y_o)\Delta y$$

5. A triangle is measured and the base is 20 inches and the height is 7 inches. The possible errors in measurement are $1/8$ inch for the base and height. Approximate the maximum possible error in the computation of the area.