

1. Use chain rule.

$$x_r = 1. \quad y_r = 3$$

$$x_s = 2. \quad y_r = 2$$

$$F'(r) = (2x + 2y^2)(1) + (4y + 6y^2)(3)$$

Plug in 1 and 3 for x and y

$$F'(s) = (2x + 2y^2)(2) + (4y + 6y^2)(2)$$

Plug in 2 and 2 for x and y