



$$dh = \pm .25 \quad h = 50$$

$$db = \pm .25 \quad b = 36$$

Product Rule

$$A = \frac{1}{2}bh$$

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$$\frac{dA}{dt} = \frac{1}{2}b\left(\frac{dh}{dt}\right) + \frac{1}{2}\left(\frac{db}{dt}\right)h$$

$$dA = \frac{1}{2}b(dh) + \frac{1}{2}(db)h$$

$$dA = \frac{1}{2}(36)(\pm .25) + \frac{1}{2}(\pm .25)(50)$$

$$dA \approx \pm 10.75 \text{ cm}^2$$

(31)

$$x = 15$$

$$dx = \pm 0.05$$

$$A = x^2$$

$$dA = 2x dx$$

$$dA = 2(15)(\pm 0.05)$$

$$dA = \pm 1.5 \text{ cm}^2$$

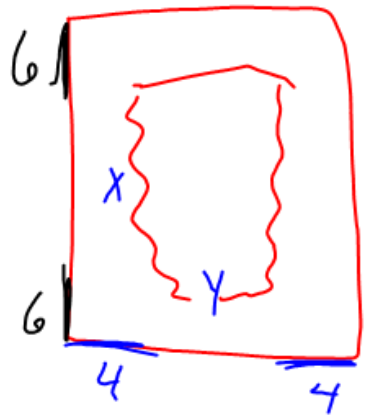
$$\frac{dA}{A} = \frac{\pm 1.5}{225} = \pm .006 \text{ (Relative Error)}$$

$$\text{Percent of Error: } .6\%$$

$$\frac{2}{3}\%$$

$$b) \underline{dA} = \underline{2x dx}$$

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Dim: 36cm x 24cm

$$A = \frac{\text{Print}}{xy} = 384 \quad y = \frac{384}{x}$$

Poster

$$A = (x + 12)(y + 8)$$

$$A = (x + 12)\left(\frac{384}{x} + 8\right)$$

$$A = 384 + 8x + \frac{4608}{x} + 96$$

$$A = 480 + 8x + \frac{4608}{x}$$

$$A' = 8 - \frac{4608}{x^2}$$

$$x^2 = \frac{4608}{8}$$

$$\textcircled{28} \quad y = \sqrt{x}$$

$$dy = \frac{1}{2\sqrt{x}} dx$$

$$\textcircled{71} \quad v' = 10 \quad v = x^3$$

$$\boxed{x = 30 \text{ cm}} \quad \underline{SA' = ?} \text{ \& find } x''$$

$$\boxed{SA = 6x^2}$$

$$v' = 3x^2 x'$$

$$10 = 3(30)^2 x'$$

$$\boxed{x' = \frac{1}{270}}$$

$$SA = 6x^2$$

$$SA' = 12x x'$$

$$\underline{SA' = 12(30)\left(\frac{1}{270}\right)}$$

HW  
# 29, 31  
39, 40, 41  
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