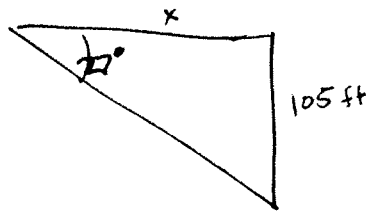


Math 122 HW #11

13.1 #84

13.2 #2, 3, 10, 21

13.1 #84



$$\tan 27^\circ = \frac{105}{x}$$

$$\text{so } x = \frac{105}{\tan 27^\circ} = 206.07 \text{ ft}$$

(calculator)

13.2 #2

$$y = -\cos 2x + \cos \frac{\pi}{6}$$

← constant

$$y' = 2 \sin 2x + 0$$

13.2 #3

$$y = 12 \tan(9x+1) \quad (\text{chain rule})$$

$$y' = 12 \cdot \sec^2(9x+1) \cdot 9 = 108 \sec^2(9x+1)$$

13.2 #10

$$y = 2x \sec^4 x$$

$$y' = 2x \cdot (\sec^4 x \tan 4x) + \sec^4 x \cdot 2 \quad (\text{product rule})$$

13.2 #21

$$y = \frac{2 \sin x}{3 - 2 \sin x} \quad (\text{quot. rule})$$

$$y' = \frac{(3 - 2 \sin x) \cdot 2 \cos x - 2 \sin x (-2 \cos x)}{(3 - 2 \sin x)^2}$$

$$= \frac{6 \cos x - 4 \sin x \cos x + 4 \sin x \cos x}{(3 - 2 \sin x)^2} = \frac{6 \cos x}{(3 - 2 \sin x)^2}$$

