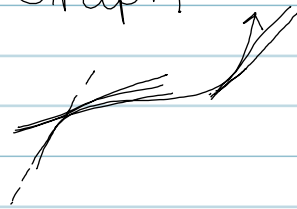


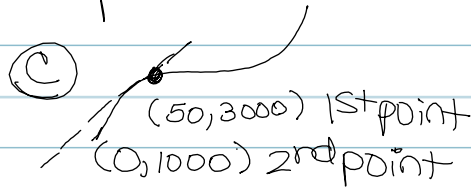
HW 4.2 #7 and #23

① Graph



① 1st part decreasing → increasing

② would be least @ its flattest point



$$M = \frac{3000 - 1000}{50 - 0} = \frac{2000}{50} = \$40$$

②③ Total Cost (TC) = Variable Cost (VC) + Fixed Cost (FC)

Part a

$$TC = VC + FC$$

\downarrow \downarrow
 (b/c is a discount) 10,000√X 2.1 million (x)

Step 1

$$C(x) = -10,000\sqrt{x} + 2.1x$$

$$C'(x) =$$

Δ to $x^{1/2}$

so $\frac{1}{2}(10,000)x^{-1/2} + 2.1$ ← Δ to 2,100,100

Step 2

$$C(x) = 2,100,000x - 10,000x^{1/2} = \text{Total Cost}$$

$$C'(x) = 2,100,000 - \frac{1}{2}(10,000)x^{-1/2} = \text{Marginal Cost}$$

$$= 2,100,000 - \frac{5,000}{\sqrt{x}}$$

Step 3

$$\text{Average Cost} = \frac{C(x)}{x} \quad \frac{TC}{\# \text{ of items}} \quad \text{or} \quad \bar{C}(x)$$

$$\bar{C}(x) = \frac{2,100,000x - 10,000x^{1/2}}{x} = \text{Average Cost}$$

Part b

$$C'(3) = (2,100,000) - (5,000/\sqrt{3}) = 2,097,113.25$$

cost of 4th commercial

$$\bar{C}(3) = \frac{2,100,000(3) - 10,000(3)^{1/2}}{3} = 2,094,22.50$$

AVG cost of first 3 commercials