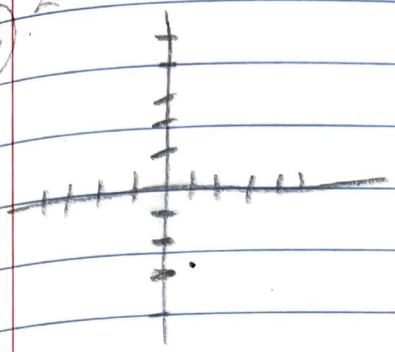
2.5

③ 

$y = x^2$ $(1, -1.5)$

$D = \sqrt{(x-1)^2 + (x^2+1.5)^2}$

$D = \sqrt{(x-1) + (x^2+1.5)^2}$

④ The sub must be at (0.5, 0.25) to have a distance of 1.414

⑤ The sub must be within the domain of $\{x | -2.15 < x < 3.15\}$

⑤ ⓐ $T = (15+x)(50000 - 2500x)$

ⓑ $\{x | 0 < x < 20\}$

ⓒ If you increase cost by $2.50, you will get $765,625 in revenue

⑥ ⓐ $R = 7.5x$ $\boxed{f(x) = 7.5x^2 - 2x + 10000}$

$C = 2x + 10000$

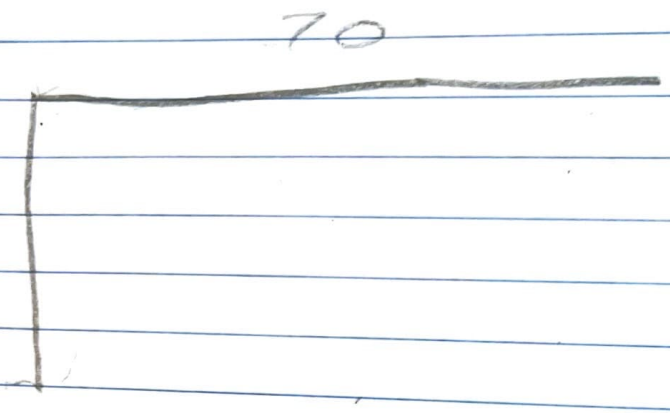
⑤ $\{x | x \in \mathbb{R}, \text{ and } x > 0\}$

⑦ To maximize profit the museum needs to sell 182 (181.818) posters

⑪ $A = \left(\frac{x}{2\pi}\right)^2 \pi + \left(\frac{33-x}{4}\right)^2$

33in to the circle would give the greatest area

(14)



$$t = \frac{(80 - x)}{60} + \frac{(\sqrt{25^2 + x^2})}{40}$$

(a) the ambulance needs to meet the buggy 32.361 miles down the road

(b) They met 2.722 miles down the road

(c) there is no transfer time between the buggy and ambulance. No acceleration or deceleration time. Travelled at a consistant speed. Assume no elevation

(15) $C(x) = \begin{cases} C = 3 \text{ if } x < 6 \\ 0.10(x) + 5 \text{ if } x \geq 6 \end{cases}$

Domain $\{x \mid 0 < x \leq 50\}$

Range $\{C \mid 5 \leq C \leq 10\}$