

APCalculusAB

Tuesday, January 14, 2014

Go over exam (FR #2)

Exploration

If homework is not assigned during a class period, your "ongoing" homework assignment is to practice your flashcards, rework old tests, work out problems from the Be Prepared book, and/or read the textbook. You should be studying for calculus AT LEAST 30 minutes every day!

$$x^2 - xy + y^2 = 4$$

$$2x - (xy' + y) + 2y \cdot y' = 0$$

$$y' = \frac{y - 2x}{2y - x}$$

$$\textcircled{b} \quad x^2 - 2y + y^2 = 4$$

$$y^2 - 2y = 0$$

$$y(y - 2) = 0$$

$$y = 0 \quad y = 2$$

$$(2, 0) \quad (2, 2)$$

$$\left. \frac{dy}{dx} \right|_{(2,0)} = 2$$

$$\left. \frac{dy}{dx} \right|_{(2,2)} = -1$$

$$y - 0 = 2(x - 2)$$

$$y - 2 = -1(x - 2)$$

(c) Vertical tangent line

$$2y - x = 0$$

$$x = 2y$$

$$\rightarrow y = \frac{1}{2}x$$

$$x^2 - xy + y^2 = 4$$

$$x^2 - x\left(\frac{1}{2}x\right) + \left(\frac{1}{2}x\right)^2 = 4$$

$$x^2 - \frac{1}{2}x^2 + \frac{1}{4}x^2 = 4$$

$$\frac{3}{4}x^2 = 4$$

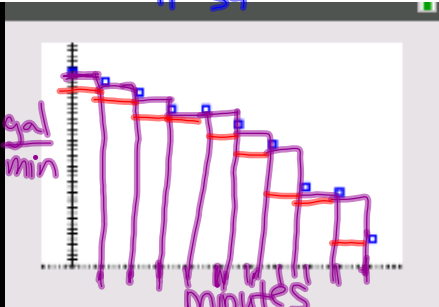
$$x^2 = \frac{16}{3}$$

$$x = \pm \frac{4}{\sqrt{3}}$$

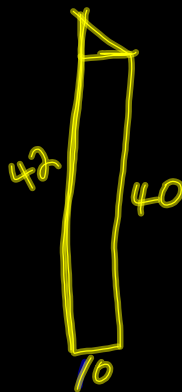
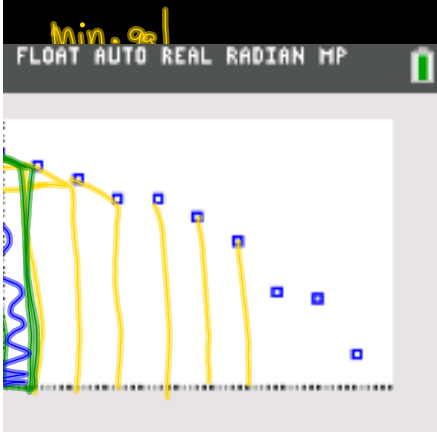
Exploration 1: A tank is being filled with water using a pump that is old, and slows down as it runs. The table below gives the rate at which the pump pumps at ten minute intervals. If the tank is initially empty, how much water is in the tank after 90 minutes?

Elapsed time (minutes)	0	10	20	30	40	50	60	70	80	90
Rate (gallons/minute)	42	40	38	35	35	32	28	20	19	10

Avg rate 29.9 gal/min



Danny: 2787.4 gal
 Jake 2691 gal
 Katie 2730 gal
 Taylor 2890 gal
 Ellen 2570 gal

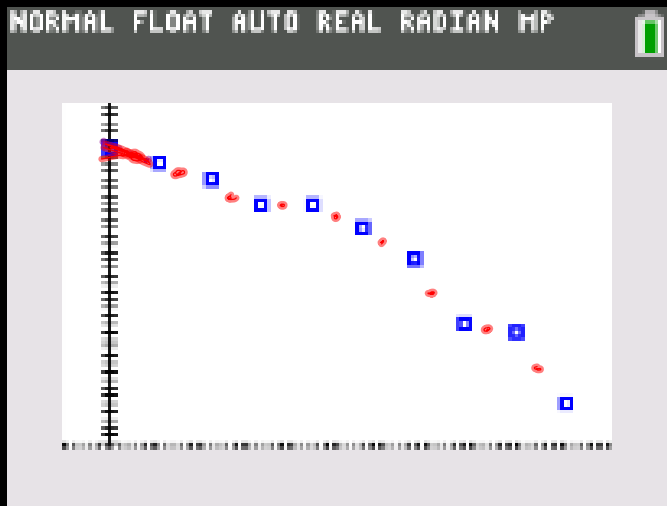


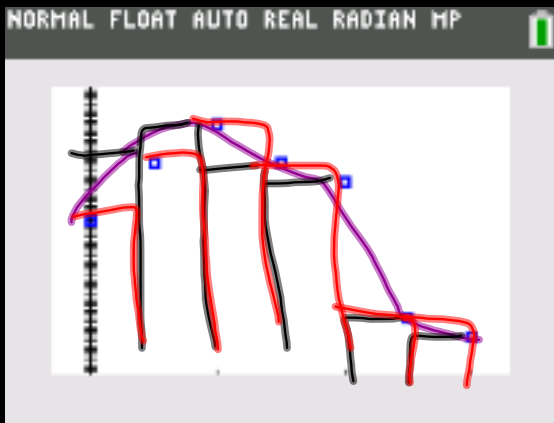
$$\frac{(a+b)}{2} = \text{Area of T}$$

$$\frac{40+42}{2}$$

trapezoid

$$10 \cdot \frac{40+42}{2}$$





Homework: Read & Take notes page 46 & 255. Do the exploration at the bottom of page 46.

1137.5 miles