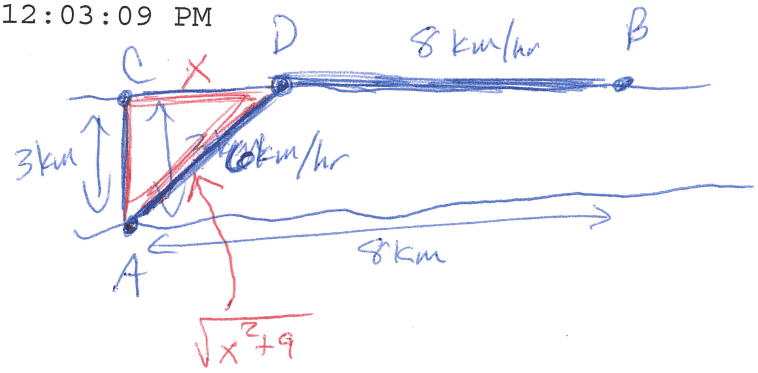
```
     ##           ##                  #
      #            #                 #
  ### #    ### #    # ##    ## ###    ###      #####  #####    ####   ## ##    #####
 #    ##   #    ##   ##  #    ##        #    #     #  #       #    #  ##  #  #    #
 #     #   #         #   #    #         #     ####   #       ######  #   #   ####
 #     #   #         #   #    #         #         #   #       #       #   #       #
 #    ##   #     #   #   #    #         #    #    #   #   #   #       #   #  #    #
  ### ##   ####    ### ### #####     #####  #####     ###    #####  ### ### #####
```

Job : 14
Date: 11/18/2014
Time: 12:03:09 PM

1.



$$T = \frac{d_{row}}{r_{row}} + \frac{d_{run}}{r_{run}}$$

$$T = \frac{\sqrt{x^2+9}}{6} + \frac{8-x}{8}$$

$T' = 0$ calc ⇝ $x = 3.4016$ km

he should land 3.402 km from point C.

2.

~~$V = \pi r^2 h$~~ $SA = 2\pi r^2 + 2\pi r h = 2\pi r^2 + 2\pi r\left(\frac{354}{\pi r^2}\right)$

$V = \pi r^2 h$

$354 = \pi r^2 h$

$h = \frac{354}{\pi r^2}$ gently place

$SA' = 0$ ⇝ $r = 3.8336$ cm, $h = 7.667$ cm

3. my radius is much bigger and can is much shorter.

4. $SA = 4\pi r^2 + 2\pi rh$ — 3 tops + 1 bottom.

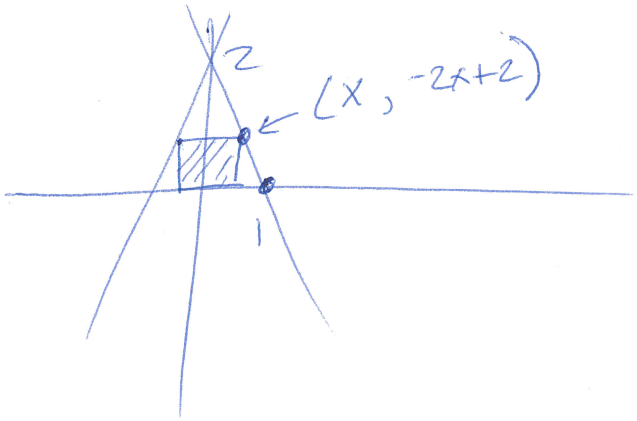
$= 4\pi r^2 + 2\pi rh$

$= 4\pi r^2 + 2\pi r\left(\frac{354}{\pi r^2}\right)$

$SA' = 0 \rightsquigarrow$ $r = 3.0427$ cm, $h = 12.1709$ cm

5. very close to actual.

6.



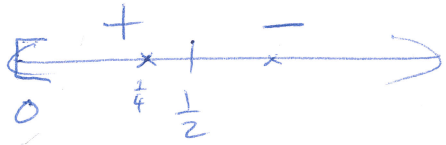
$A = lw = 2x \cdot y$

$= 2x(-2x+2)$

$A = -4x^2 + 4x$

$A' = -8x + 4 = 0$

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



max @ $x = \frac{1}{2}$, $y = -2(\frac{1}{2}) + 2$

$y = 1$

Largest area = 1 units^2

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Date: 11/17/2014
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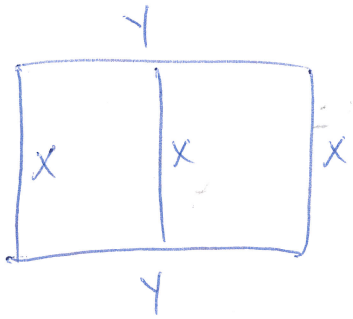
7.



$400 = 3x + 2y \rightarrow y = \frac{400-3x}{2}$

$A = xy = x\left(\frac{400-3x}{2}\right)$

$A = 200x - \frac{3}{2}x^2$

$A' = 200 - 3x = 0$

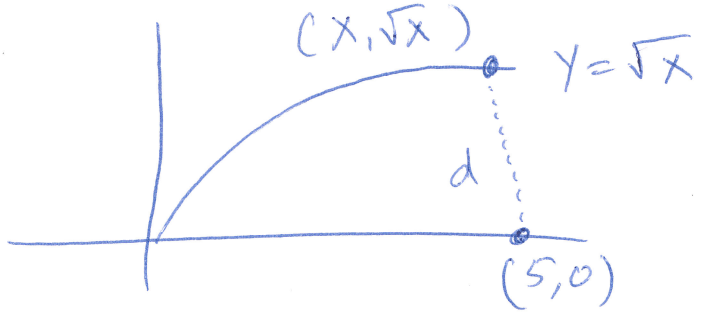
$x = \frac{200}{3}$

$y = \frac{400 - 3\left(\frac{200}{3}\right)}{2}$

$= 100$

$\frac{200}{3}$ ft $\times$ 100 ft

8.



$$d = \sqrt{(x-5)^2 + (\sqrt{x}-0)^2}$$

$$= \sqrt{x^2 - 10x + 25 + x}$$

$$= \sqrt{x^2 - 9x + 25}$$

minimize just insides!

$$f = x^2 - 9x + 25$$

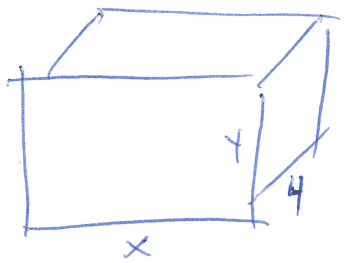
$$f' = 2x - 9 = 0$$

$$x = 4\tfrac{1}{2}$$

$$y = \sqrt{\tfrac{9}{2}} = \frac{3}{\sqrt{2}}$$

$$\left(4\tfrac{1}{2}, \frac{3\sqrt{2}}{2}\right)$$

9.



$$4xy = 36 \rightarrow y = \frac{36}{4x} = \frac{9}{x}$$

$$5(2(xy + 4y)) + 10(4x) = \text{Cost}$$

$$\text{Cost} = 10xy + 40y + 40x$$

$$= 10x\left(\frac{9}{x}\right) + 40\left(\frac{9}{x}\right) + 40x$$

$$= 90 + \frac{360}{x} + 40x$$

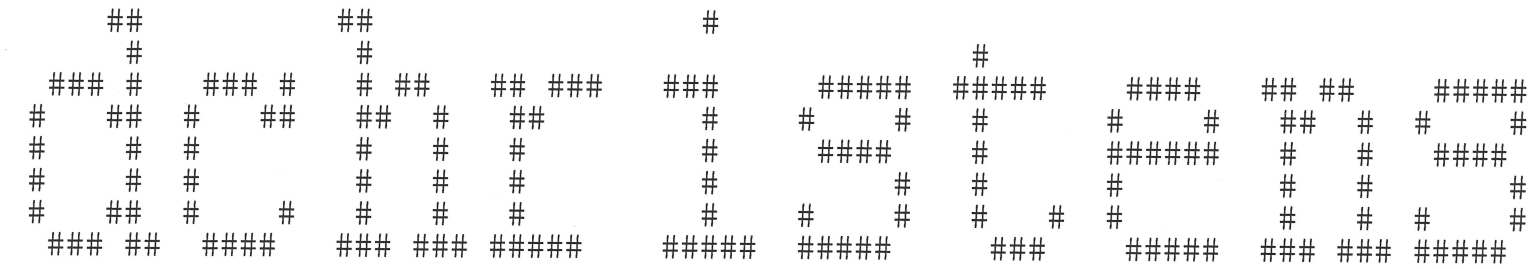
$$\text{Cost}' = -\frac{360}{x^2} + 40 = 0$$

$$x^2 = \frac{-360}{-40} = 90$$

$$x = 3\sqrt{10}$$

$$y = \frac{9}{3\sqrt{10}} = \frac{3\sqrt{10}}{10}$$

cheapest
$4 \times 3\sqrt{10} \times \frac{3\sqrt{10}}{10}$ meters



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Date: 3/3/2014
Time: 2:16:28 PM

10.

Production = T · R

$= (\quad)(\quad)$

$P = (30+X)(400-10X)$

$P = 12000 + 100X - 10X^2$

$P' = -20X + 100$

$X = 5$

+ | −

5

max production when adding 5 trees/acre