

Find the dimensions of the rectangle with minimum perimeter if its area is 300 square meters. Find this least perimeter.



$$p = 2x + 2y$$

$$A = xy$$

$$300 = xy$$

$$y = \frac{300}{x}$$

$$p(x) = 2x + 2\left(\frac{300}{x}\right) \Rightarrow y_1 = 2x + \frac{600}{x}$$

$$x = 17.321 \text{ m}$$

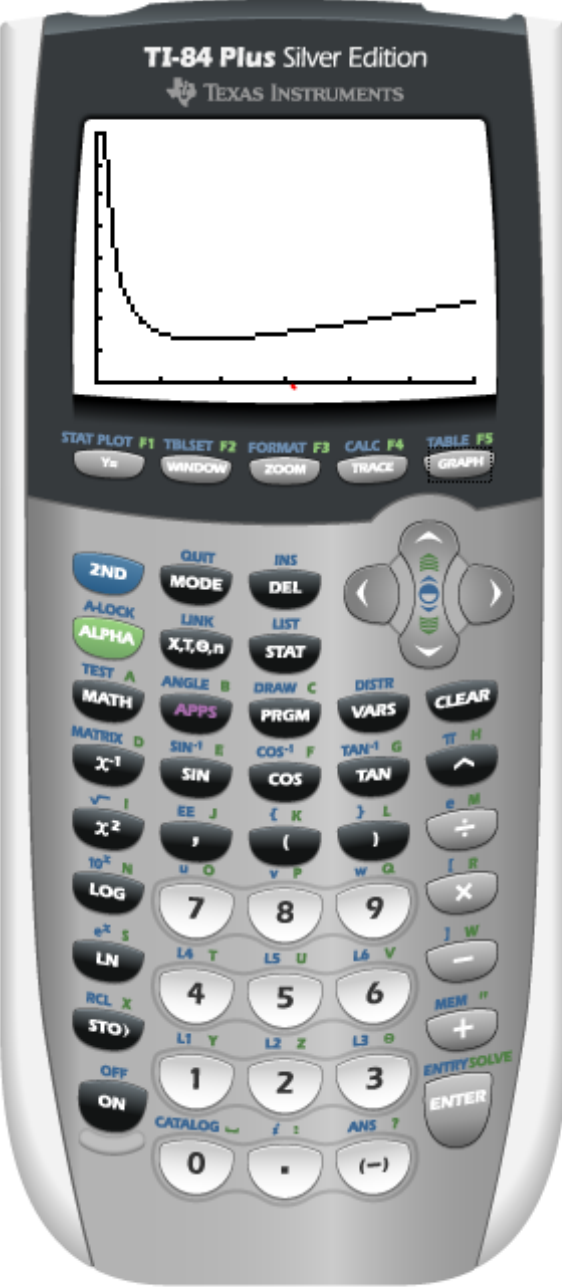
$$\min p = 69.282 \text{ m}$$

$$y = \frac{300}{17.321} \text{ m}$$

TI-SmartView
_ □ ×

File Edit View Tools Scripts Help

📄 📁 📊 📦 🔄



WINDOW

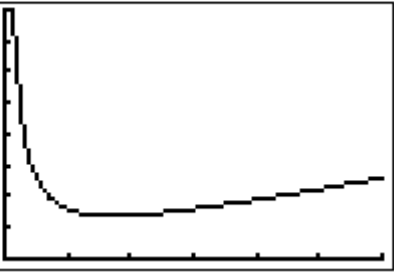
Xmin=0
 Xmax=60
 Xscl=10
 Ymin=0
 Ymax=400
 Yscl=50
 Xres=1

Window

X	Y1	
403	206	
3	901.33	
.66667		

X=1.5

Table



Graph

Key Press History Large Screen

Y= < ENTER WINDOW 0 ▾

1 5 0 ▾ 1 5

▾ 0 ▾ 4 0 0

▾ 4 0 < < 5

0 WINDOW ▾ 6 0 ▾

1 0 GRAPH

Clear Key Press History

Get out Coop sheet: Work with Alpha 3 partners. See me if you are partnerless

Handout distributed 10/30/09

p. 186 #10, 13, 18, 21

When the degree of the numerator is one more than the degree of the denominator you need to divide to find the equation of the slant asymptote!

#30

$$\frac{x^2}{1} - \frac{3}{x} = \frac{7}{1}$$

$$x^3 - 3 = 7x$$

$$x^3 - 7x - 3 = 0$$

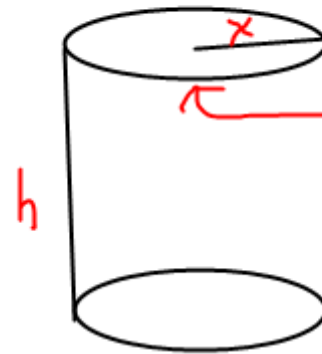
$$\frac{\pm 1, \pm 3}{\pm 1} \Rightarrow$$

$$SA = LA + 2B$$

$$S(x) = 2\pi x^2 + 2\pi x \left(\frac{500}{\pi x^2} \right)$$

$$= 2\pi x^2 + \frac{1000}{x}$$

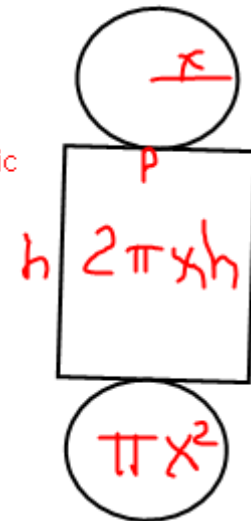
$$= \frac{2\pi x^3 + 1000}{x}$$



Perimeter of Base is the length of the lateral area $= 2\pi x$

$$V = Bh$$

Use Net for figure to create an algebraic model for the Surface Area



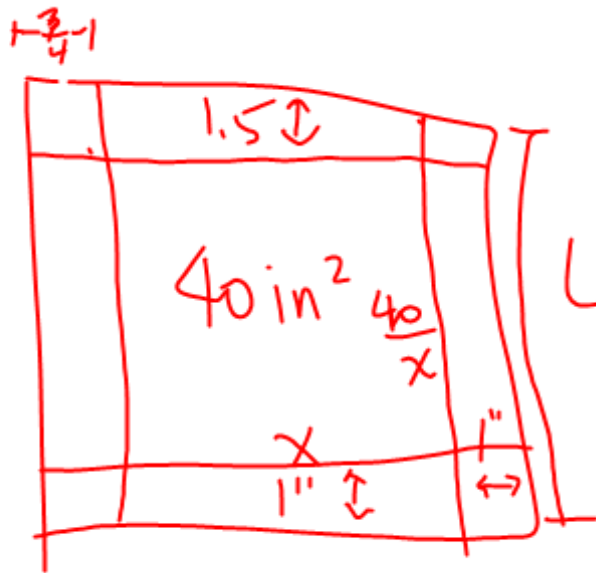
500 cm³

$$\frac{500}{\pi x^2} = h$$

$$V = 5L = \pi x^2 h$$

$$SA = 2B + LA$$

#36

 $L =$

$$L = \frac{40}{x} + 2.5$$

$$W \\ (x + 1\frac{3}{4})$$

$$A(x) = \left(\frac{40}{x} + 2.5\right) (x + 1.75)$$