

What I have

What do I need?

Work it out!

1.

$$V = 40\pi$$

$$V = \pi r^2 h$$

$$40 = \pi r^2 h$$

$$* SA = 2\pi r h + 2\pi r^2$$

replace

SA = \_\_\_\_\_ (in terms of r)  
SA when r = 5

1.

$$V = 40\pi$$

$$V = \pi r^2 h$$

$$40 = \pi r^2 h$$

$$\frac{40}{\pi r^2} = h$$

$$* SA = 2\pi r h + 2\pi r^2$$

replace

$$SA = 2\pi r \left(\frac{40}{\pi r^2}\right) + 2\pi r^2$$

$$SA = \frac{80}{r} + 2\pi r^2$$

$$SA = \frac{80}{5} + 2\pi(5)^2$$
$$= 16 + 50\pi \approx 173.08$$

The surface area is 173.08 when the radius is 5.

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2.

$$P = 750$$



$$P = 5w + 2l$$

$$750 = 5w + 2l$$

$$750 - 2l = 5w$$

$$150 - \frac{2}{5}l = w$$

\* maximize  
 $A = lw$

$$A = l \left( 150 - \frac{2}{5}l \right)$$

$$A = 150l - \frac{2}{5}l^2$$

$$l = \frac{-150}{2 \left( -\frac{2}{5} \right)} = 187.5$$

$$A = 150(187.5) - \frac{2}{5}(187.5)^2$$

$$= 14062.5$$

$$X = \frac{-b}{2a}$$

The maximum area he can enclose is  $14062.5 \text{ ft}^2$

A candy store sells boxes of candy containing caramels and crèmes. Each box sells for \$12.50 and holds 30 pieces of candy (all pieces are the same size). If the caramels cost \$0.25 to produce and the crèmes cost \$0.45 to produce, how many of each should be in a box to make a profit of \$3?

30 = total number of candies in box

X = number of caramels

Y = number of cremes

.25 = cost to produce and the caramels

.45 = cost to produce and the crèmes

9.50 = cost to produce box (since were MAKING \$3 profit)

$$X + Y = 30$$

$$.25x + .45Y = 9.50$$

$$-.25 X \quad -.25Y = -7.50$$

$$\underline{.25x + .45Y = 9.50}$$

$$.20Y = 2.00$$

$$Y = 10 \text{ and } X = 20$$

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$$S(t) = -16t^2 + v_0 t + S_0$$

$$S(t) = -16t^2 + 4t + 6$$

When will it  
hit the  
ground?

$$-16t^2 + 4t + 6 = 0$$

$$8t^2 - 2t - 3 = 0$$

$$(4t - 3)(2t + 1) = 0$$

$$t = \frac{3}{4} \quad t = -\frac{1}{2}$$

The ball will hit the ground  
in .75 seconds