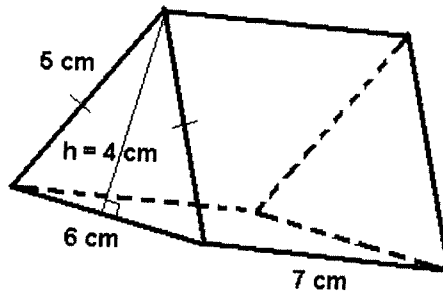


## 1. Geometry:

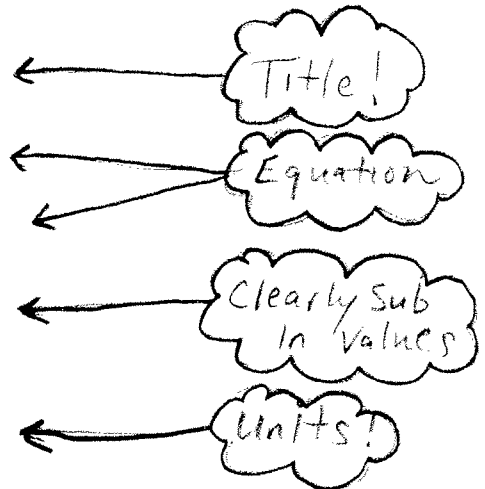
There is a candy bar which is in the shape of a triangular prism. If you double the length of each side, by how much does the surface area increase?



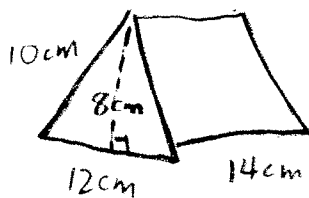
The Original Sized Candy Bar ↑

Calculate SA of Original

$$\begin{aligned} SA_1 &= 2\Delta + 2\square + \square \\ &= 2\left(\frac{1}{2}bh\right) + 2lw + lw \\ &= 4(6) + 2(5)(7) + (6)(7) \\ &= 24 + 70 + 42 \\ &= 136 \text{ cm}^2 \end{aligned}$$



Calculate SA of New

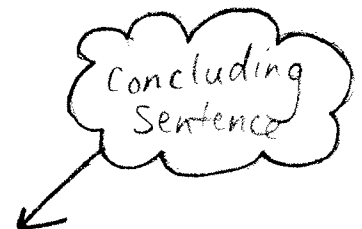


$$\begin{aligned} SA_2 &= 2\Delta + 2\square + \square \\ &= 2\left(\frac{1}{2}bh\right) + 2lw + lw \\ &= 8(12) + 2(10)(14) + 12(14) \\ &= 96 + 280 + 168 \\ &= 544 \text{ cm}^2 \end{aligned}$$



Increase

$$\begin{aligned} \text{Inc} &= SA_2 - SA_1 \\ &= 544 - 136 \\ &= 408 \text{ cm}^2 \end{aligned}$$



∴ The Surface Area Increases by  $408 \text{ cm}^2$