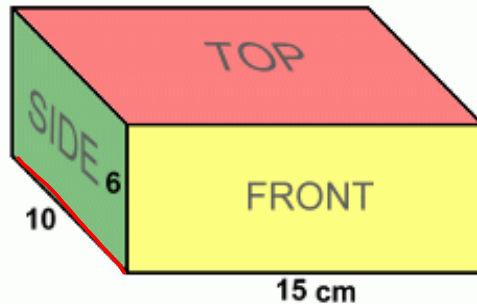


# SURFACE AREA OF PRISMS

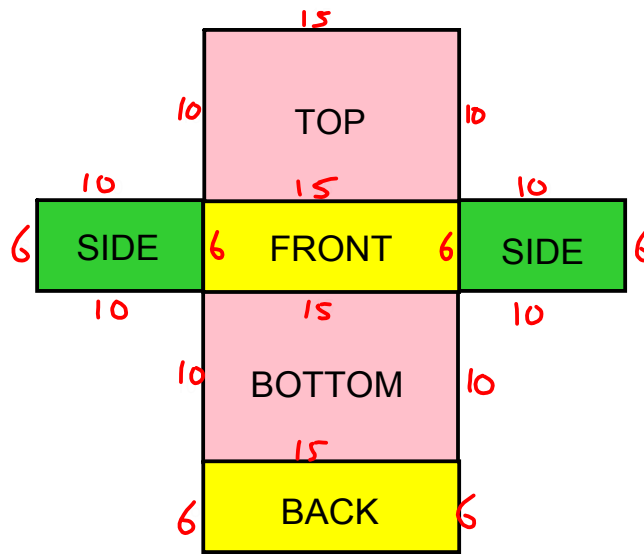
Recall:

A prism is a three-dimensional object with two parallel, congruent polygonal bases. A prism is named by the shape of the base.



A net is a two-dimensional drawing of what a three-dimensional solid would look like if it were taken apart and laid out.

1. Sketch a net of the prism and label each surface with its dimensions.



2. Which measurements are the same? Is this true for all rectangular prisms or just this one?

top=bottom

side=side

front=back

Yes, this will always happen for all rectangular prisms.

3. Find the surface area of each section.

Top: $A = l \times w$ $A = 10 \times 15 = 150$	Bottom: $A = 150$
Front: $A = 6 \times 15 = 90$	Back: $A = 90$
Side: $A = 6 \times 10 = 60$	Side: $A = 60$

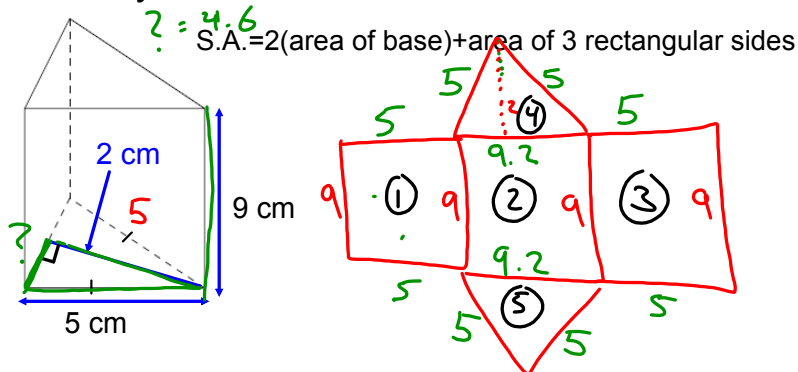
4. Add all of the sections together to find the total surface area of the box.

$$TSA = 150 + 150 + 90 + 90 + 60 + 60 = 600 \text{ cm}^2$$

5. Write a formula for finding the total surface area of the rectangular prism.

$$\begin{aligned} 2^2 + ?^2 &= 5^2 \\ 4 + ?^2 &= 25 \\ ?^2 &= 21 \end{aligned}$$

6. a) If the box had a triangular base, how would you find the total surface area?



b) Calculate the total surface area given the dimensions?

$$\begin{aligned} S.A. \# 1 + 3 &= 9 \times 5 \times 2 = 90 \text{ cm}^2 \\ S.A. \# 4 + 5 &= \frac{9.2 \times 2}{2} \times 2 = 18.4 \text{ cm}^2 \\ S.A. \# 2 &= 9.2 \times 9 = 82.8 \text{ cm}^2 \\ \text{Total SA} &= 90 + 82.8 + 18.4 = 191.2 \text{ cm}^2 \end{aligned}$$

7. You are building a storage box made out of plywood using the dimensions shown. Plywood costs \$1.50/ft<sup>2</sup>. Find the total cost of the plywood.

