MTH1W

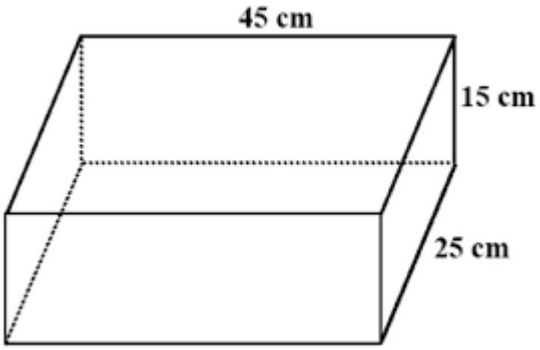
Surface Area

Surface Area is the combined area of all the *surfaces* on a three-dimensional shape.

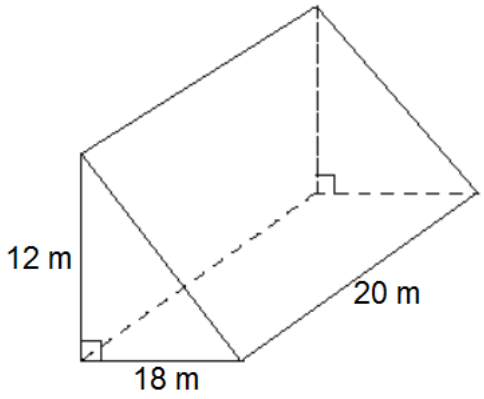
- It's like how much paper you'd need to cover it

Practice

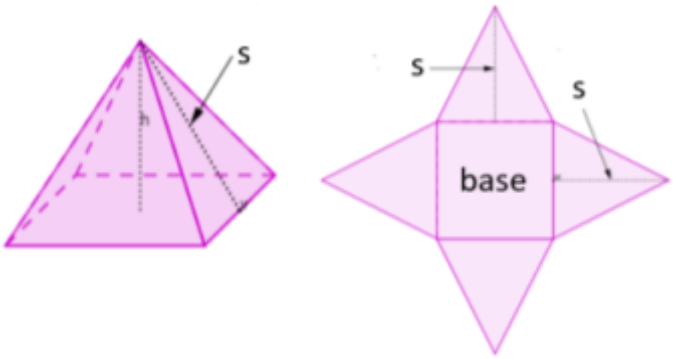
1. This **rectangular prism** has **six surfaces**.
   Calculate the area of each surface, and then add them together to find the **surface area**.



2. This right triangular prism has five sides.
   Calculate the **surface area** of the shape.



3. A **square-based pyramid** has:
   - One square base
   - Four equivalent triangles



I have drawn the **net** of the pyramid →
This is what we'd get if we broke the pyramid apart, along its seams, and spread it flat.

If the square base is 30 cm x 30 cm,
And the height of the pyramid is also 30 cm:

a) What is the length of the **slant height**, *s* ?

b) What is the surface area of the pyramid?

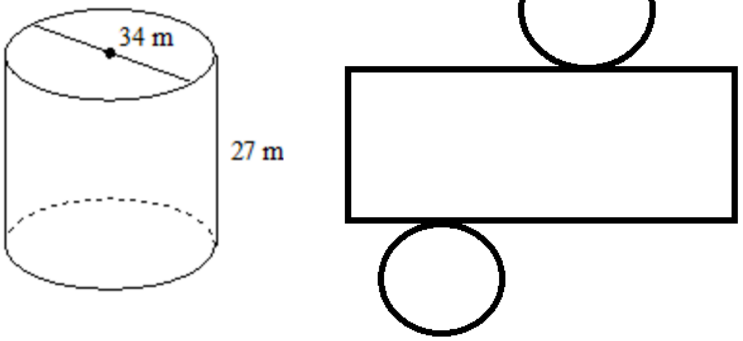
5. The surface area of a sphere is $A = 4\pi r^2$
   The **circumference** of an NBA basketball is 74.93 cm.

a) What is the radius of an NBA basketball?

b) What is the surface area of an NBA basketball?

6.a) What would this cylinder look like if you:

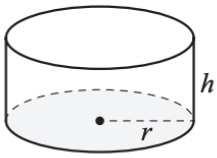
- popped off the top and bottom, then
- cut open one side, and
- spread it flat?



b) Calculate its surface area

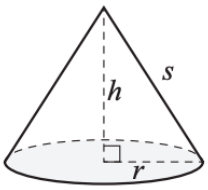
c) The EQAO formula sheet has this →

What does it mean by **lateral surface**?
(Use Google if you have to)

Cylinder	
	$A_{\text{base}} = \pi r^2$ $A_{\text{lateral surface}} = 2\pi rh$ $A_{\text{total}} = 2A_{\text{base}} + A_{\text{lateral surface}}$ $= 2\pi r^2 + 2\pi rh$

d) The EQAO formula sheet has this →

Use this formula to find the surface area of this cone:

Cone	
	$A_{\text{base}} = \pi r^2$ $A_{\text{lateral surface}} = \pi rs$ $A_{\text{total}} = A_{\text{base}} + A_{\text{lateral surface}}$ $= \pi r^2 + \pi rs$