## S2 Topic 10: Volume and Surface Area



## 4) In S2 we will learn how to find the volume of a triangular prism, for example: -



8cm

9cm



5) In S2 we will learn how to find the volume of a cylinder, for example: -

Radius =  $8 \div 2 = 4$ cm Volume =  $\pi \times r^2 \times h$ =  $3.14 \times 4^2 \times 9$ = 452.16cm<sup>3</sup>

Notice that diameter is given and radius is needed to calculate volume.

6) In S2 we will learn how to find the surface area of a cuboid, for example: -



Area of front =  $8 \times 5 = 40$ Area of side =  $6 \times 5 = 30$ Area of top =  $8 \times 6 = 48$ Total so far = 118

Surface area = 118 × 2 = **<u>236 cm<sup>2</sup></u>** 

Notice that we find the area of front, side and top then double it to allow for the back, the other side and the bottom.



b) The village hall is always cold. Looking on a website, Jim finds some heaters which he thinks will work well in the hall. The company recommends one heater should be fitted for every  $75m^3$  to be heated. Use Jim's sketch of the village hall below to work out how many heaters are needed to heat the hall properly. 15m 6m 8m c) How many glasses can be filled from a 2 litre bottle of juice if the glasses are cylinders 6cm in diameter and 10cm high. (Assume the glasses are filled up to within 1cm of the top so no juice is spilled when people pick the glasses up.) **REMEMBER TO SHOW ALL YOUR WORKING** AND EXPLAIN YOUR ANSWER FULLY!