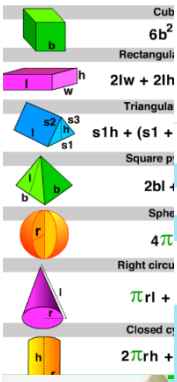


GCSE Maths

ASSIGNMENT Wk5

Preparatory Sheet

Required preparation for the session on……

SURFACE AREA, NETS AND 3D VOLUME ENLARGEMENT

Aims of this session: Review your abilities in each of these areas, Green (feel confident..G), Amber (need to work more on..A), Red (Feel weaker at this..R)

1. Calculate the surface area of 3D shapes
2. Find the volume of 3D objects using appropriate formulae
3. Increase/decrease lengths/areas/volumes of similar objects
4. Identify the net of a 3D object

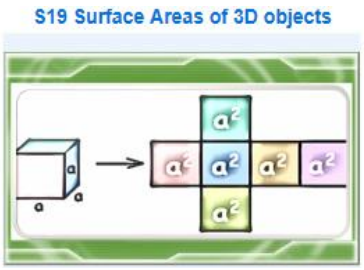
G A R

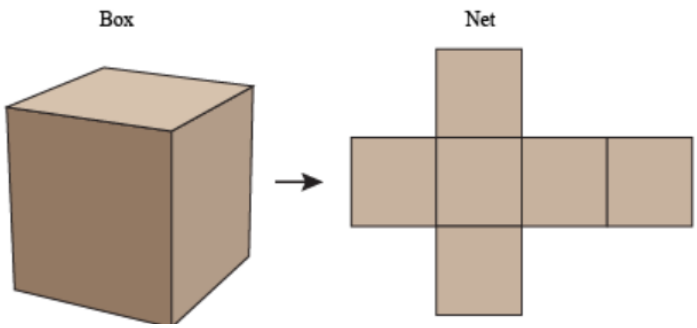
MOSTLY GREEN ☐ MOSTLY ORANGE ☐ MOSTLY RED ☐

START S19 . Watch the video/s, read and practice

https://padlet.com/mathsman230774/qkuwab01e2rs

Write a comment about what you learned from the videos / materials below

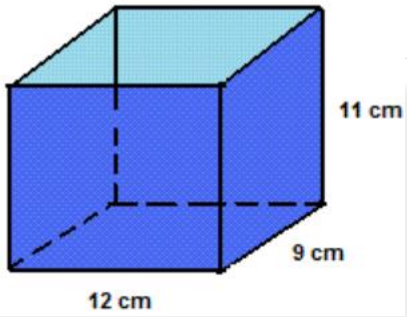




1.

Calculate the surface area of 3D shapes

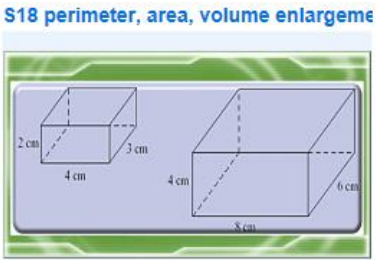
Q… A surface area is the amount of squared area wrapped around a 3D object. Each side of the object is considered and separate side areas are then added together for a total surface area. Attempt to find the surface area of the following 3D shape.



HINT…find the area of each side with Area(A) = length(L) x width(w). You need to find all 6 side areas. Some are the same from front to back, or top to bottom etc.

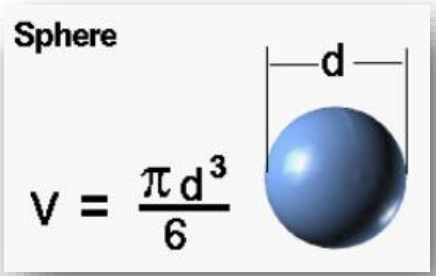
https://padlet.com/mathsman230774/51p06aeilql

2. Next look at S18



Find the volume of 3D objects using appropriate formulae

Q… The number of cubes in a 3D space is called the objects' volume. To find the number of cubes we can normally put them into the object in rows columns and layers then multiply each (LxWxH). More complicated shapes do not conform to this basic formula and require other formulae to work out their volume. Find the volume of the following object using the given formula and that d=10cm.

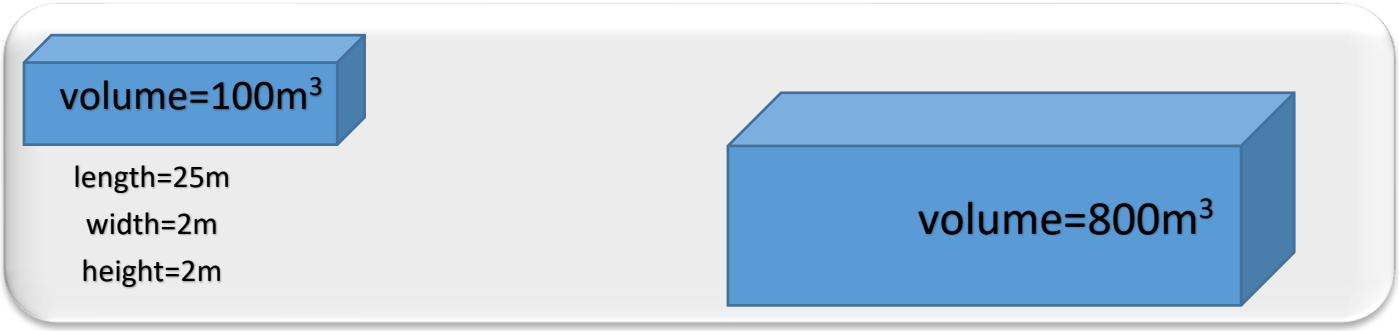


HINT… π is just the number 3.14. 'd' is the diameter of the sphere (ball) and in this case is the number ten. The d^3 means multiply d by itself three times..ie d x d x d (here it will be 10x10x10). Lastly you need to divide your answer by 6. Consider the unit as the end of the calculation!

3.

Increase/decrease lengths/areas/volumes of similar objects

Q…. Often objects increase in size as they grow, but this means they become taller, wider, and longer covering a greater surface area and volume. Look at the next set of shapes which are 'similar'. Use the scale factor increase between the two volumes to work out the length, width and height of the new enlarged shape.



Hint…look back at your work on 2D enlargement and the formula you were given Ak = L x √k x W x √k. This formula can be extended to Vk = = L x ³√k x W x ³√k x H x ³√k

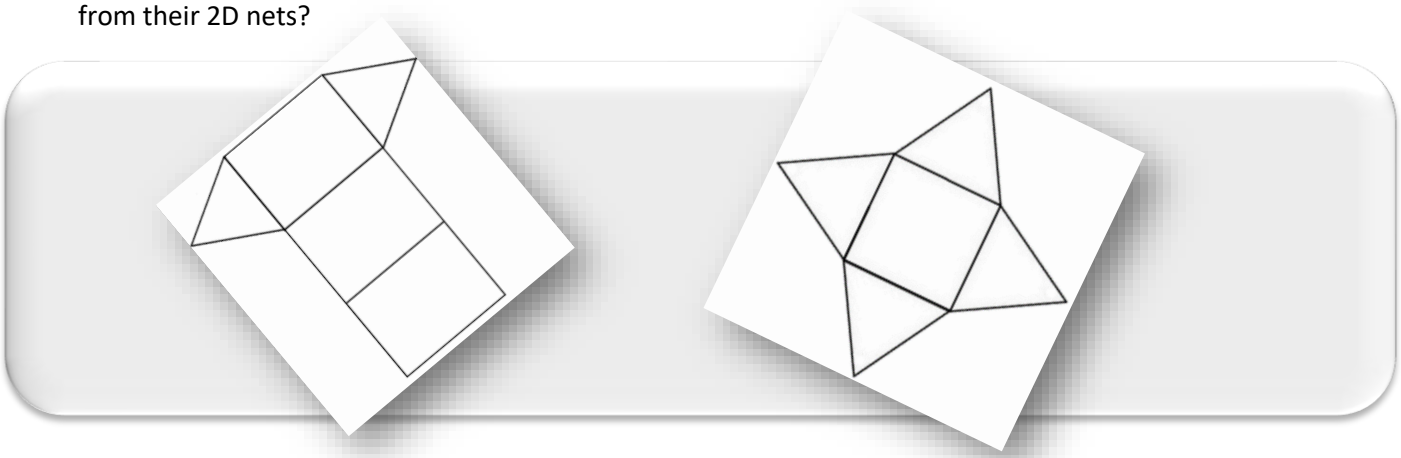
https://padlet.com/mathsman230774/exomjao9ddxd

Next, Look at S17

4.

Identify the 'Net' of a 3D object

Q… When 3D objects are able to be opened up and laid flat on a 2D surface, each of their sides becomes a 2D shape. When viewed together these shapes are called a 'Net'. Can you recognise the following 3d objects from their 2D nets?



HINT… the only way if you do not know these, to find out what the 3D object is, is to fold each shape back up into a 3D by folding across each line that joins each separate shape. This is a very practical piece of maths and physically making and folding these 2D images will really help in recognising these shapes again next time you see them.

END OF PREPATORY ASSIGNMENT

What to do now….

1. **Ensure you have marked in each box if you feel confident in each topic or not (this will inform you and your tutor which activities you should do in the session)**
2. **Bring this yellow assignment with you to your next session and check with your tutor answers given**
3. **Add this to your folder of work IN ORDER YELLOW…GREEN…ORANGE… (and any BLUE you achieve)!**