

## Warm-Up Challenge

Flashback

4

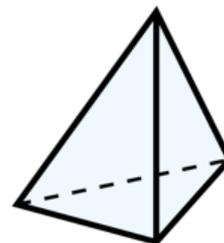
Year 5 | Week 5 | Day 3

1) If an angle is  $282^\circ$ , what type of angle is it?

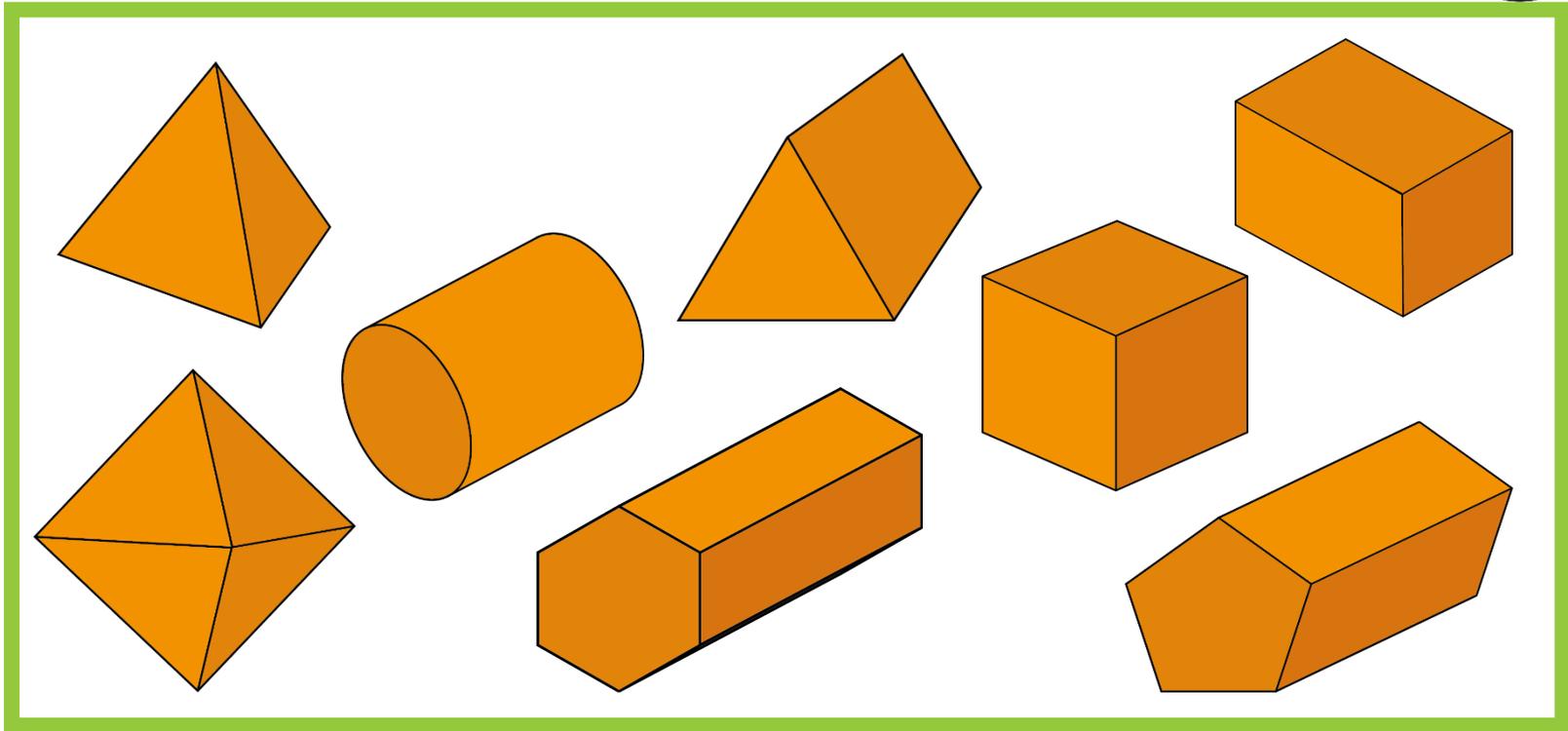
2) Work out  $23 + 1.14 + 0.86$

3) Find the difference between  
 $0.629$  and  $0.941$

4)  $\frac{3}{7} + \frac{2}{7} = \square + \frac{1}{7}$

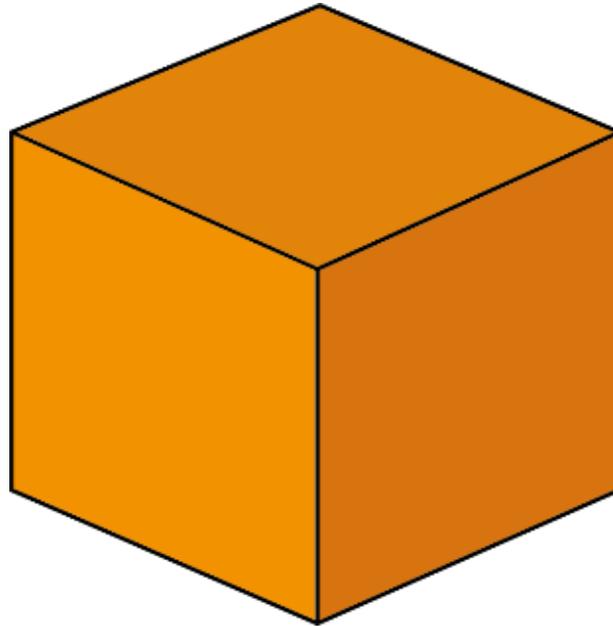


# Identifying 3D Shapes



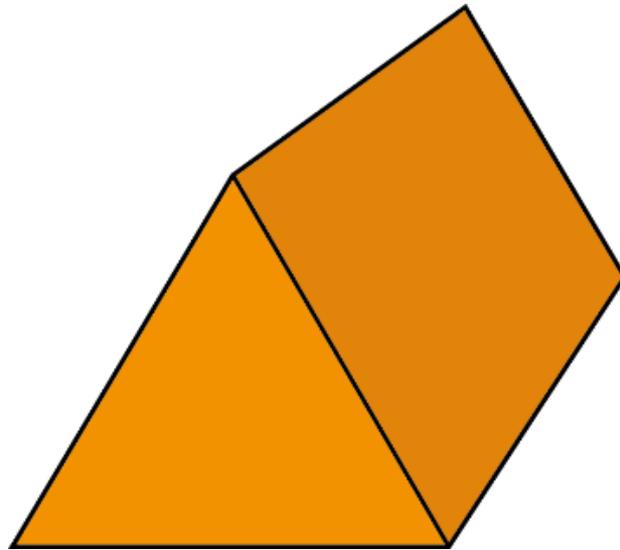
Which of these 3D shapes can you name and describe?

# Identifying 3D Shapes



Now identify a) an edge    b) a face    c) a vertex (vertices)

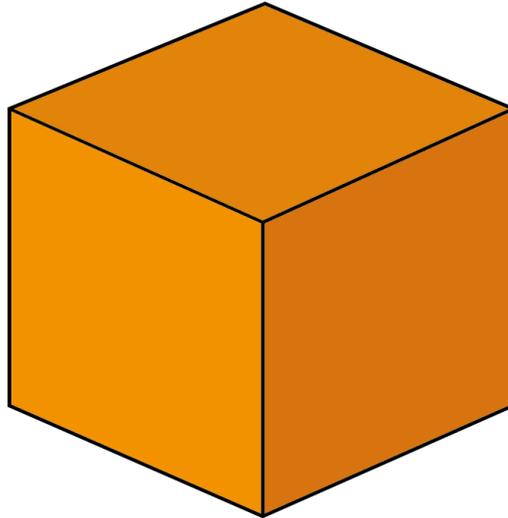
# Identifying 3D Shapes



Now identify a) an edge    b) a face    c) a vertex (vertices)

# Quiz Time - How Many Faces?

How many faces does this 3D shape have?  
Click on your answer to see if you are correct.



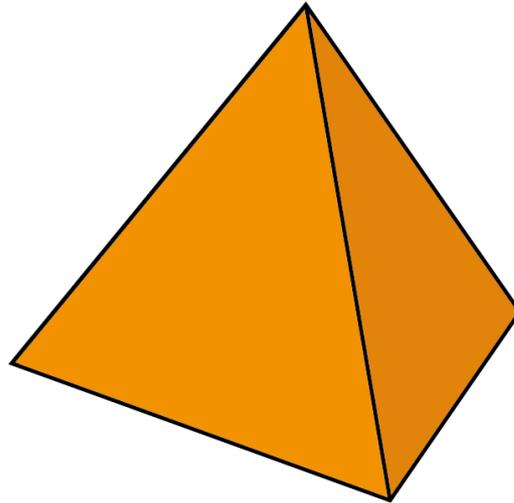
4

6

8

# Quiz Time - How Many Faces?

How many faces does this 3D shape have?  
Click on your answer to see if you are correct.



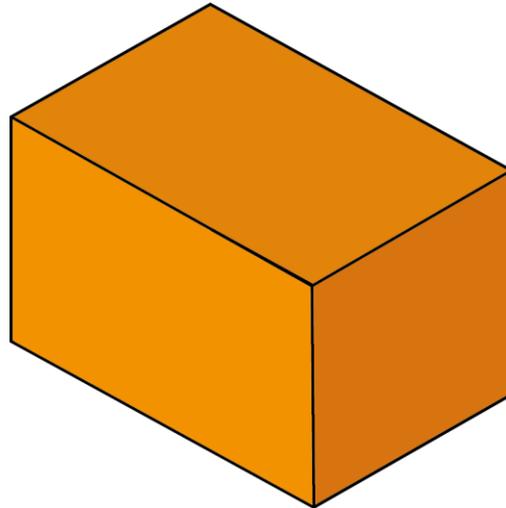
4

6

5

# Quiz Time - How Many Edges?

How many edges does this 3D shape have?  
Click on your answer to see if you are correct.



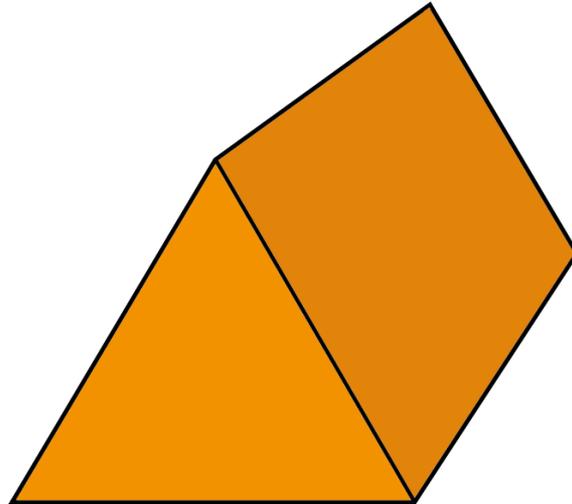
6

12

10

# Quiz Time - How Many Faces?

How many faces does this 3D shape have?  
Click on your answer to see if you are correct.



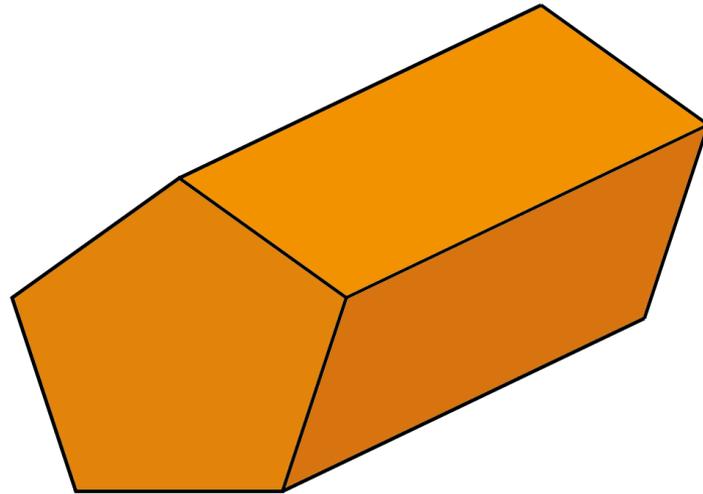
4

5

6

# Quiz Time - How Many Edges?

How many edges does this 3D shape have?  
Click on your answer to see if you are correct.



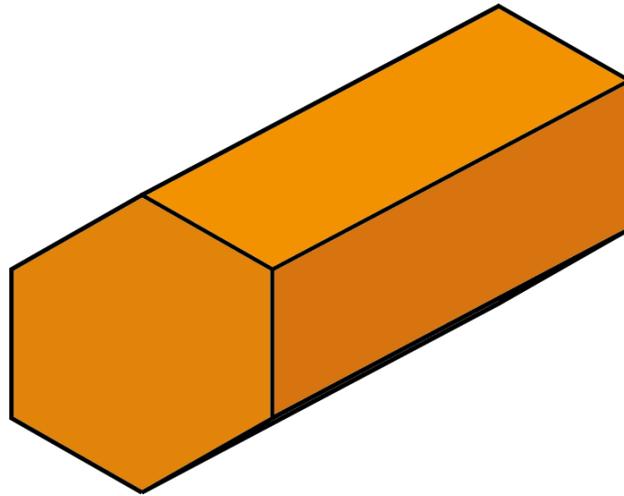
15

5

9

# Quiz Time - How Many Vertices?

How many vertices does this 3D shape have?  
Click on your answer to see if you are correct.

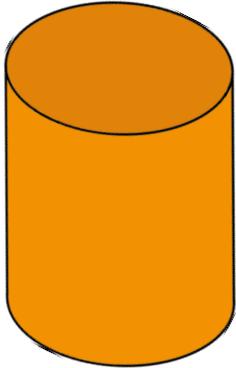


8

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12

# Identifying 3D Shapes

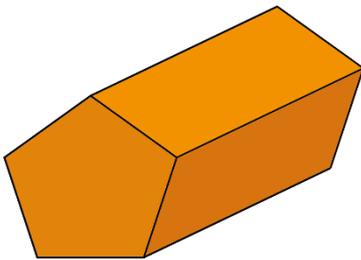


## Cylinder

- ... faces
- ... edges
- ... vertices

## Challenge:

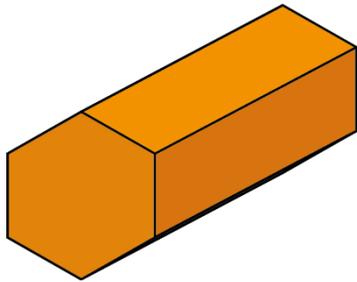
Identify and record the number of faces, edges and vertices for these 3D shapes.



## Pentagonal Prism

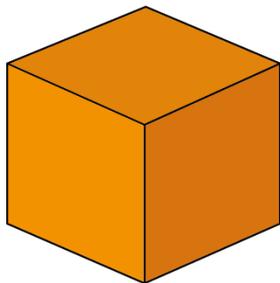
- ... faces
- ... edges
- ... vertices

# Identifying 3D Shapes



## Hexagonal Prism

- ... faces
- ... edges
- ... vertices

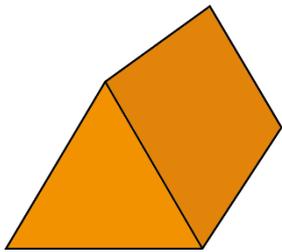


## Cube

- ... faces
- ... edges
- ... vertices

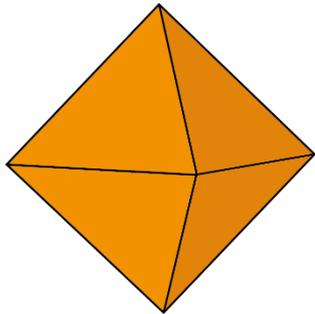
**Challenge:**  
Identify and record the number of faces, edges and vertices for these 3D shapes.

# Identifying 3D Shapes



## Triangular Prism

- ... faces
- ... edges
- ... vertices



## Octahedron

- ... faces
- ... edges
- ... vertices

**Challenge:**  
Identify and record the number of faces, edges and vertices for these 3D shapes.

# Properties of 3D Shapes

## Independent Challenge 1:

Turn to page 12 in your maths work pack and record the number of faces, vertices and edges for each of the 3D shapes identified in the grid.

Do not complete the final column of each grid (2D shape net) at the moment though as we are going to explore 'nets' in a little bit more depth using the following slides.

Name	No. of faces	No. of edges	No. of vertices	2D shape net
Cone 				
Triangular Prism 				

Name	No. of faces	No. of edges	No. of vertices	2D shape net
Cuboid 				
Tetrahedron 				

# Nets of 3D Shapes

Which **definition** of a net do you think you will need today?



A net is something you throw a ball into to score a goal in netball



A net is something you take fishing



A net is a kind of material with lots of holes in it



Net is a short word for the internet

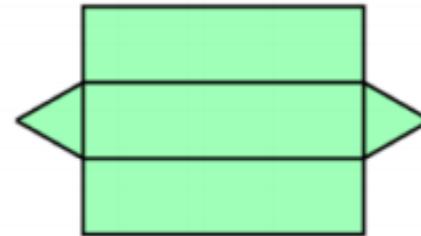
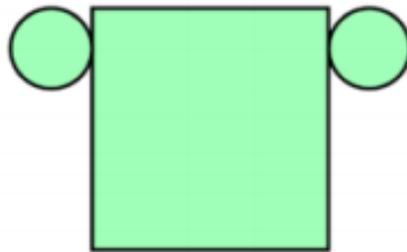


A net is a flat pattern you can cut out and fold to make the surface of a solid shape

# Nets of 3D Shapes

Match nets to common 3D solids and vice versa

Draw lines to link the nets to their correct solids.



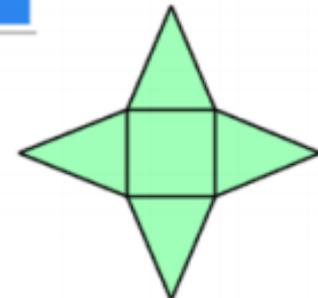
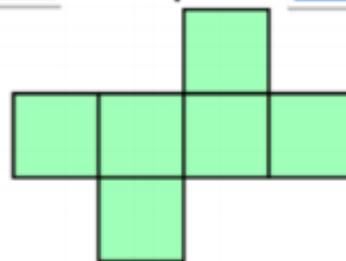
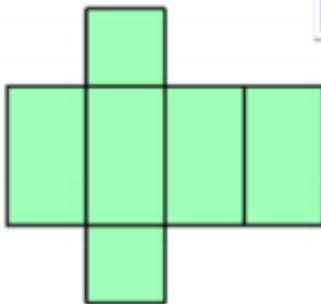
Cuboid

Triangular  
Prism

Square-based  
Pyramid

Cylinder

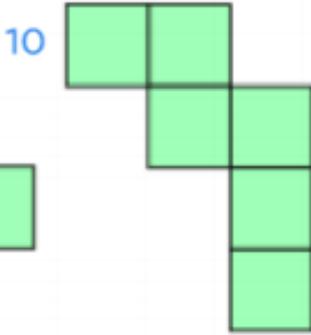
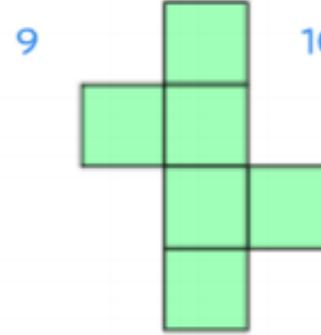
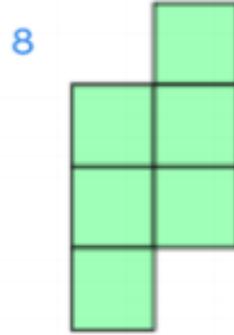
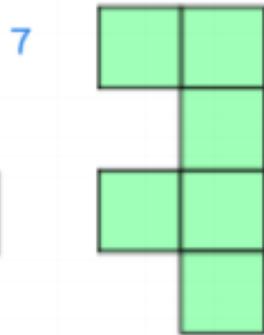
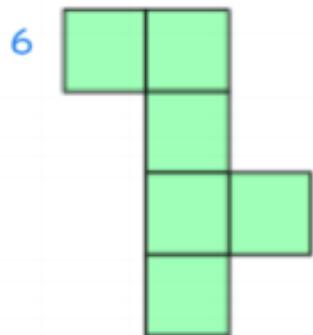
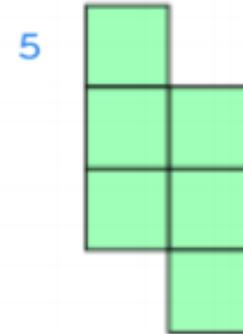
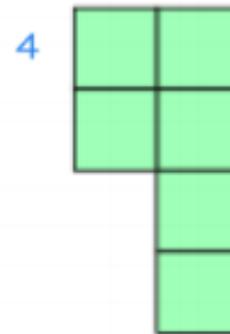
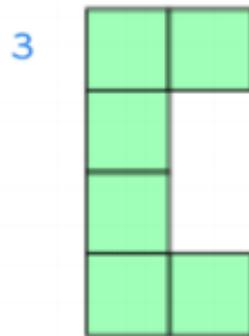
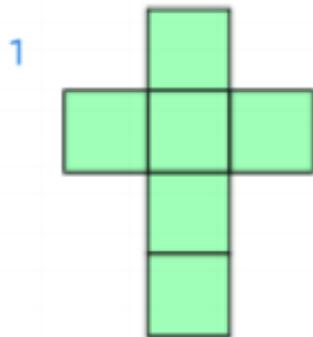
Cube



# Nets of 3D Shapes

Recognise that there are several possible nets for some shapes

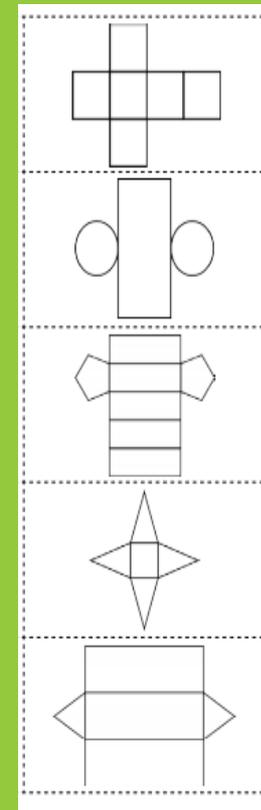
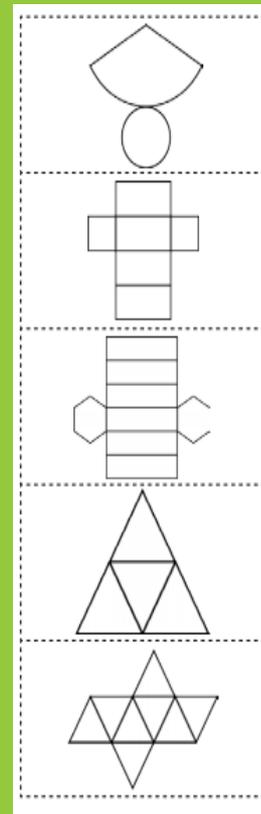
Circle the **nets** that will make **cubes**.



# Properties of 3D Shapes

## Independent Challenge 2:

Using page 15 in your work pack, now progress to identifying the correct net for each of the 3D shapes. Cut them out and carefully glue the nets onto your worksheet. Remember to think about the number of faces each shape has, does the net that you have chosen have the same number of faces?

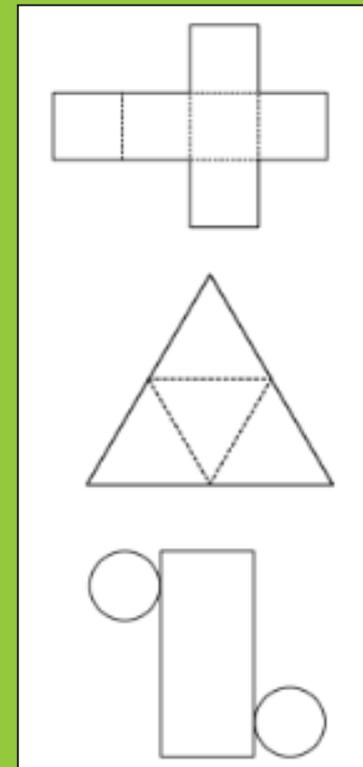


# Properties of 3D Shapes

## Extension (a):

Can you draw your own net and then cut it out to make a 3D Shape?

- How will you ensure that the faces are the same size?
- How will you 'join' the edges?
- How will you know which edges to 'cut' and which edges to 'fold'?



# Nets of 3D Shapes

## Extension (b):

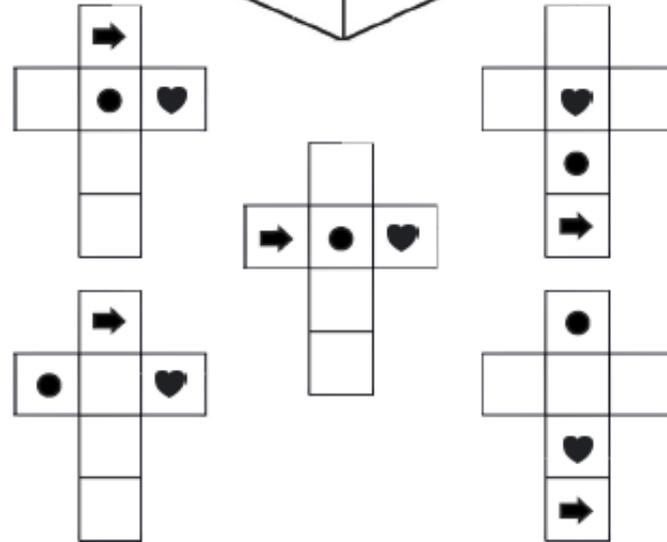
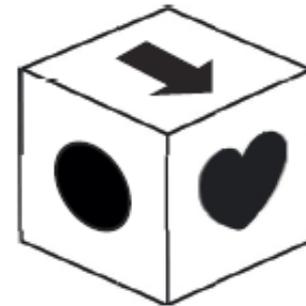
Which net would you select and why ???

Use your IWBs or a piece of scrap paper to

**‘Prove It’.**

### Question 1

Circle the shape net which matches the cube shown.



# Euler's Rule



## Brain Tickler...:

Swiss mathematician Leonhard Euler (1707 - 1783) discovered a mathematical equation relating to the properties of 3D shapes:

$$\text{Number of faces} + \text{Number of Vertices} - \text{Number of Edges} = 2$$

Choose a 3D shape and prove that the equation is correct!

