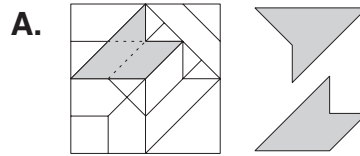
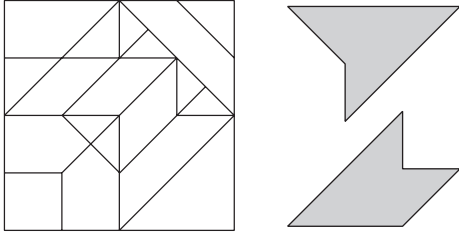


17. [Geometry]

Skill 17.1 Recognising 2D shapes.

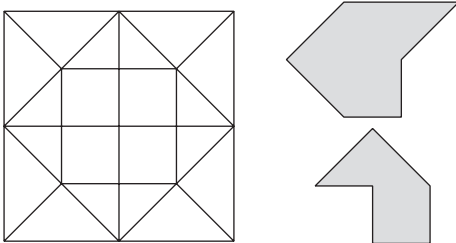
MM5 1 1 2 2 3 3 4 4
MM6 1 1 2 2 3 3 4 4

Q. One of these shapes is hidden in the maze. Find it and colour it in.
(Same size and orientation.)

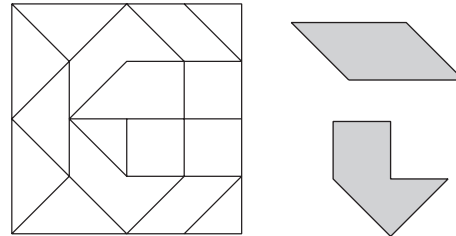


Trace and cut out the shapes to lay over the maze. Slide them to check possible positions. [Remember: Do not change their orientation by turning them. The shapes must have every edge outlined.]

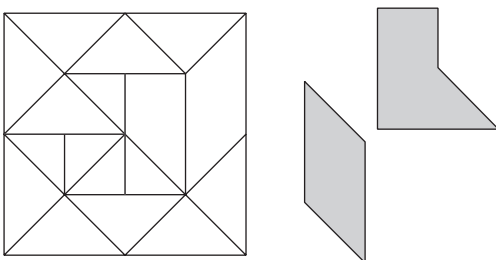
a) One of these shapes is hidden in the maze. Find it and colour it in.
(Same size and orientation.)



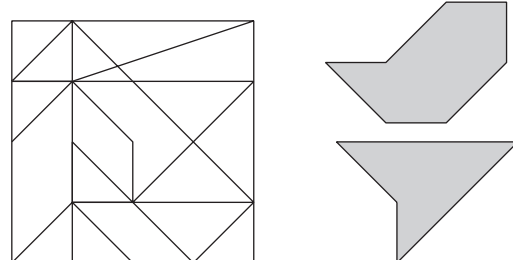
b) One of these shapes is hidden in the maze. Find it and colour it in.
(Same size and orientation.)



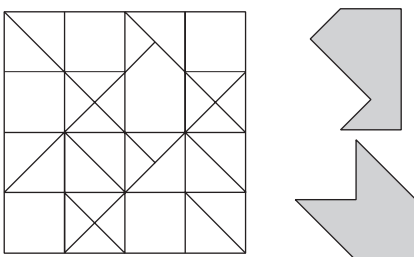
c) One of these shapes is hidden in the maze. Find it and colour it in.
(Same size and orientation.)



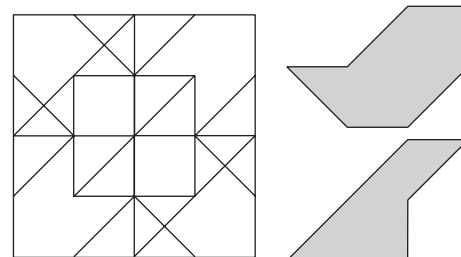
d) One of these shapes is hidden in the maze. Find it and colour it in.
(Same size and orientation.)



e) One of these shapes is hidden in the maze. Find it and colour it in.
(Same size and orientation.)



f) One of these shapes is hidden in the maze. Find it and colour it in.
(Same size and orientation.)



- Draw two dimensional shapes (2D) in two directions, length and width.
Hint: 2D shapes have no height.
- Use the name of the shape (based on Latin and Greek words) to work out the number of sides.

<i>Hint:</i>	<i>mono</i>	-	<i>one</i>	<i>hexa</i>	-	<i>six</i>		
<i>poly</i>	-	<i>many</i>	<i>bi or di</i>	-	<i>two</i>	<i>hepta</i>	-	<i>seven</i>
<i>equi</i>	-	<i>equal</i>	<i>tri</i>	-	<i>three</i>	<i>octa</i>	-	<i>eight</i>
<i>gon</i>	-	<i>angle</i>	<i>quad or tetra</i>	-	<i>four</i>	<i>nona</i>	-	<i>nine</i>
<i>lateral</i>	-	<i>side</i>	<i>penta</i>	-	<i>five</i>	<i>deca</i>	-	<i>ten</i>

Q. Draw a pentagon.



Consider the name:
gon = angle
penta = 5
You need to draw a shape that has 5 interior angles and therefore 5 sides.

a) Draw a quadrilateral.

b) Draw a triangle.

c) Draw a rectangle.



quad = 4
lateral = sides

d) Draw a square.

e) Draw a decagon.

f) Draw a heptagon.

g) Draw a pentagon.

h) Draw an octagon.

i) Draw a nonagon.

j) Draw a trapezium.

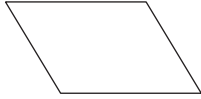
k) Draw a hexagon.

l) Draw an equilateral triangle.

- Use the name of the polygon (poly means 'many' and gon means 'angle') to determine the number of interior angles or the number of sides.

Hint: The number of interior angles = The number of sides.

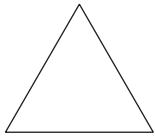
Q. How many sides does a rhombus have?



A. 4

A rectangle, square, trapezium and rhombus all belong to the quadrilateral family. quad = 4
lateral = sides

a) How many interior angles does a triangle have?

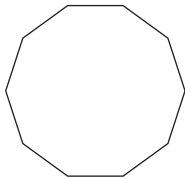


3

b) How many sides does a rectangle have?



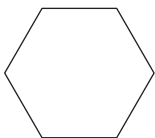
c) How many sides does a decagon have?



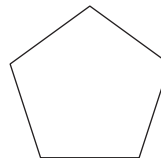
d) How many interior angles does a square have?



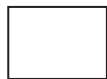
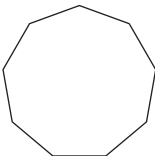
e) How many interior angles does a hexagon have?



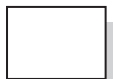
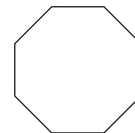
f) How many sides does a pentagon have?



g) How many sides does a nonagon have?



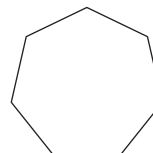
h) How many sides does an octagon have?



i) How many interior angles does a quadrilateral have?



j) How many sides does a heptagon have?



- Observe whether the 3D shape has a curved surface (cones, cylinders and spheres) or flat surfaces (pyramids and prisms).
- If all surfaces are flat, then decide if the figure is a pyramid (narrowing to a point) or a prism (rectangular lateral faces).

Q. Choose the correct answer indicating the type of solid in the figure below:

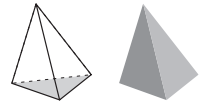
- A) Triangular pyramid
- B) Triangular prism
- C) Cone



A. C

A) Triangular pyramid would have a triangle at its base and 3 faces that are triangular.

incorrect



B) Triangular prism would have a triangle at its base and top, and 3 faces that are rectangular.

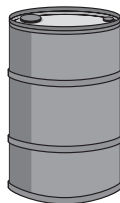
incorrect



C) Cone has a circular base and one curved surface narrowing to a point.
correct

a) Choose the correct answer indicating the type of solid in the figure below:

- A) Cone
- B) Sphere
- C) Cylinder



C

b) Choose the correct answer indicating the type of solid in the figure below:

- A) Square pyramid
- B) Rectangular prism
- C) Cone



c) Choose the correct answer indicating the type of solid in the figure below:

- A) Square pyramid
- B) Cube
- C) Sphere



d) Choose the correct answer indicating the type of solid in the figure below:

- A) Rectangular prism
- B) Triangular prism
- C) Cylinder



e) Choose the correct answer indicating the type of solid in the figure below:

- A) Cylinder
- B) Cone
- C) Sphere

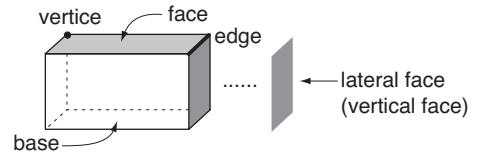


f) Choose the correct answer indicating the type of solid in the figure below:

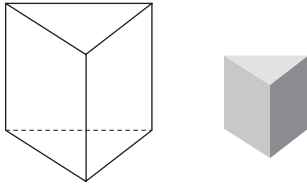
- A) Rectangular prism
- B) Square pyramid
- C) Cube



- Count the number of: Faces,
Edges and/or
Vertices (points/corners).

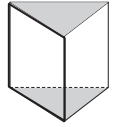


Q. What is the shape of the 3 lateral faces of the triangular prism shown below?

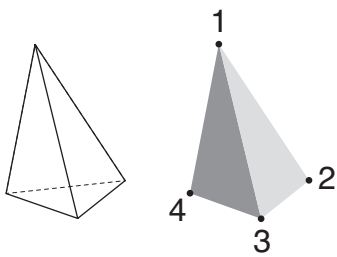


A. **Rectangle**

The 2 parallel bases of a triangular prism are triangular in shape. These triangles, as for all prisms, are joined by rectangular faces. The number of rectangular faces is the same as the number of sides on the base shape.



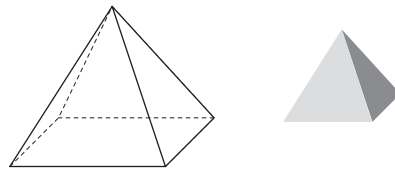
a) How many vertices does a triangular pyramid have?



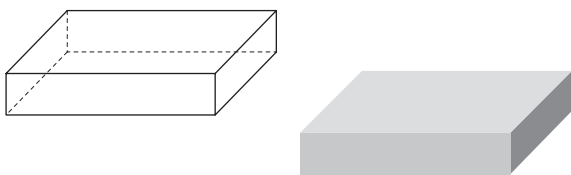
Count the number of points.

4

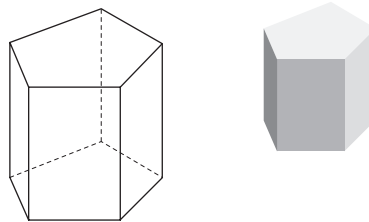
b) How many edges does a rectangular pyramid have?



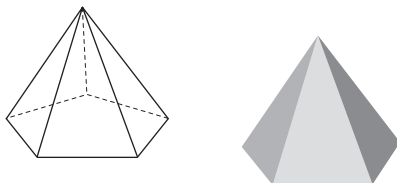
c) How many edges does a rectangular prism have?



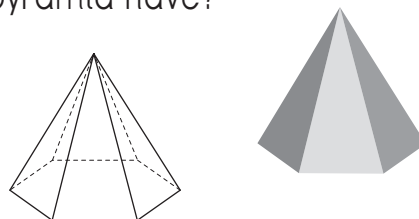
d) What is the shape of the 5 lateral (vertical) faces of the pentagonal prism shown below?



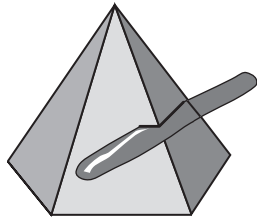
e) How many vertices does a pentagonal pyramid have?



f) How many faces does a hexagonal pyramid have?



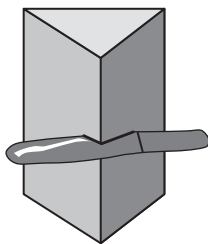
Q. Name the shape of the cross-section through the pentagonal pyramid below.



A. Pentagon

The base of the pyramid is a pentagon. The shape of the cross-section will also be pentagonal.

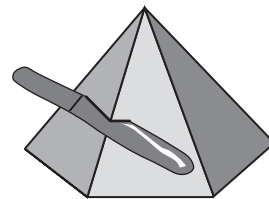
a) Name the shape of the cross-section through the triangular prism below.



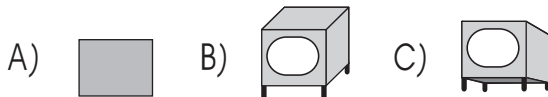
The view of the cross-section is the same as the view from the top.

triangle

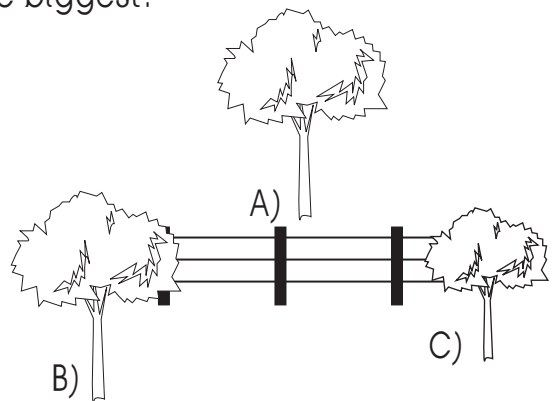
b) Name the shape of the cross-section through the hexagonal pyramid below.



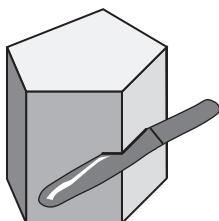
c) A fly on the ceiling, a father and a baby all looked at the television. Which view looks like the one seen by the fly?



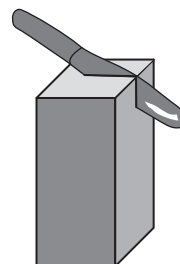
d) In the sketch below, which tree is the biggest?



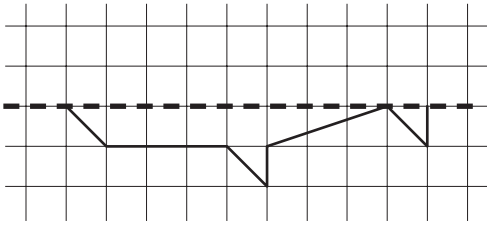
e) Name the shape of the cross-section through the pentagonal prism below.



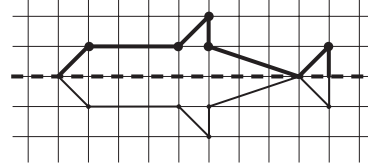
f) Name the shape of the cross-section through the square prism below.



Q. The dashed horizontal line is an axis of symmetry. Complete the drawing so that it is symmetrical about this axis of symmetry.



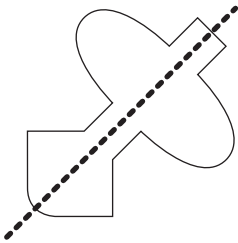
A.



Hold a mirror vertically on the axis. What you see is what needs to be drawn behind.

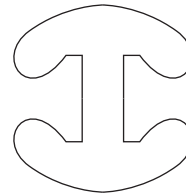
OR Mark every turning point on the shape. Copy these points to the same distance above the axis of symmetry as they are below. Join the points.

a) Draw the line of symmetry through the shape below.

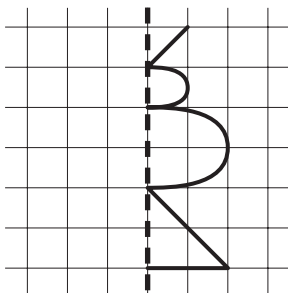


The shape on one side of the line is identical to the shape on the other side of the line. The line of symmetry is oblique.

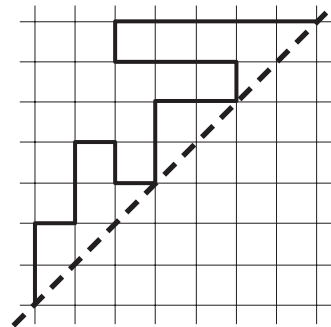
b) Draw the two lines of symmetry through the shape below.



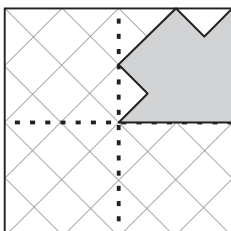
c) The dashed vertical line is an axis of symmetry. Complete the drawing so that it is symmetrical about this axis of symmetry.



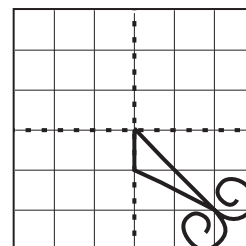
d) The dashed oblique line is an axis of symmetry. Complete the drawing so that it is symmetrical about this axis of symmetry.



e) This design has two lines of symmetry shown by the dotted lines. Complete the design.



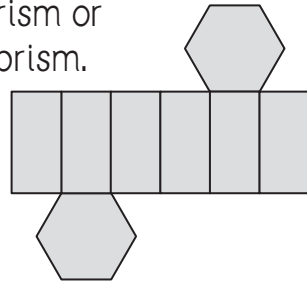
f) This design has two lines of symmetry shown by the dotted lines. Complete the design.



- Identify the shapes in the net.
- Imagine the shape folded. OR Make a model by tracing, cutting out and folding the net.

Q. The net below could be used to make a model of a,

- A) hexagonal pyramid,
- B) hexagonal prism or
- C) rectangular prism.






A. B

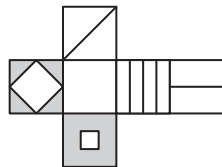
The net is formed from 2 hexagons and 6 rectangles. Pyramids have triangles as their lateral sides. Prisms have rectangles. It must be a prism not a pyramid. This prism has hexagons as its base and top.

OR

Trace, cut out and fold the shape.

a) Which of the boxes can be made from the net below?

- A) 
- B) 
- C) 

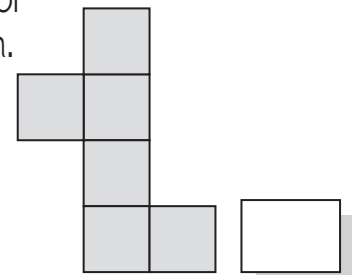


Trace, cut out and fold the shape.

B

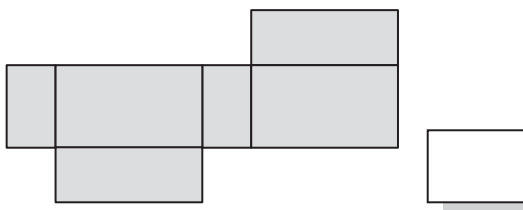
b) The net below could be used to make a model of a:

- A) cube,
- B) tetrahedron or
- C) square prism.



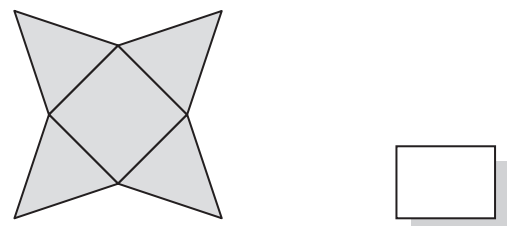
c) The net below could be used to make a model of a:

- A) square prism,
- B) rectangular prism or
- C) cube.



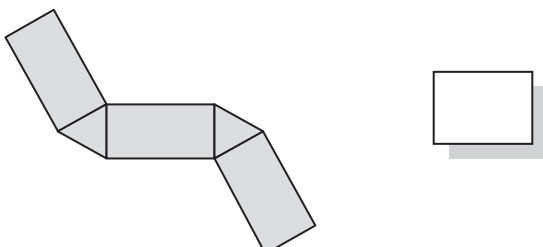
d) The net below could be used to make a model of a:

- A) triangular pyramid,
- B) square prism or
- C) square pyramid.






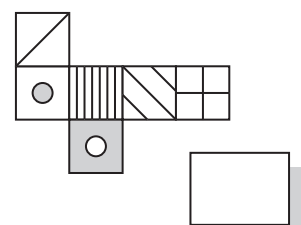
e) The net below could be used to make a model of a:

- A) cube,
- B) triangular prism or
- C) triangular pyramid.

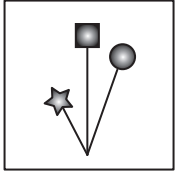


f) Which of the boxes can be made from the net below?

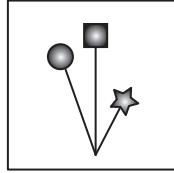
- A) 
- B) 
- C) 



- Q. The movement of this object to a different position is a
 A) flip (reflection),
 B) slide (translation) or
 C) turn (rotation)?



Position 1



Position 2

A. **A**

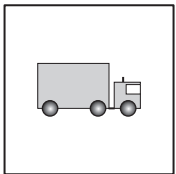
A) Hold a mirror vertically on the right edge of position 1. This shows the object has been reflected to achieve position 2. correct

Sketch the object as in position 1.

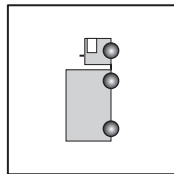
B) Try flipping it. Note the change in position as a result. incorrect

C) Try sliding it. Note the change in position as a result. incorrect

- a) The movement of this object to a different position is a
 A) flip (reflection),
 B) slide (translation) or
 C) turn (rotation)?



Position 1

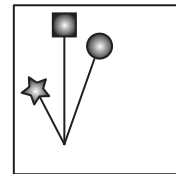


Position 2

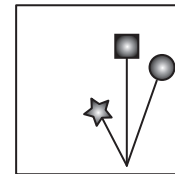
The truck has been turned a quarter of a turn, anticlockwise.

C

- b) The movement of this object to a different position is a
 A) flip (reflection),
 B) slide (translation) or
 C) turn (rotation)?

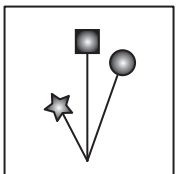


Position 1

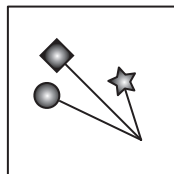


Position 2

- c) The movement of this object to a different position is a
 A) flip (reflection),
 B) slide (translation) or
 C) turn (rotation)?

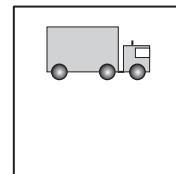


Position 1

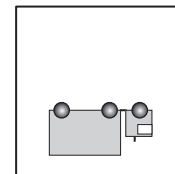


Position 2

- d) The movement of this object to a different position is a
 A) flip (reflection),
 B) slide (translation) or
 C) turn (rotation)?

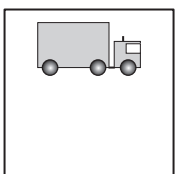


Position 1

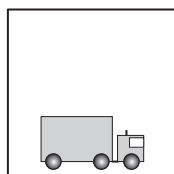


Position 2

- e) The movement of this object to a different position is a
 A) flip (reflection),
 B) slide (translation) or
 C) turn (rotation)?

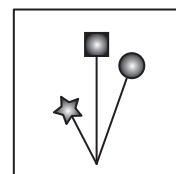


Position 1

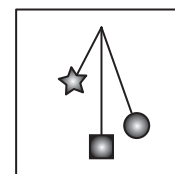


Position 2

- f) The movement of this object to a different position is a
 A) flip (reflection),
 B) slide (translation) or
 C) turn (rotation)?



Position 1



Position 2