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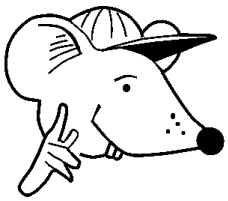
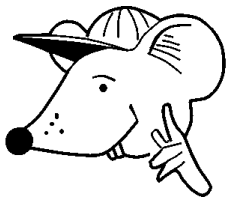


MATHEMATICS



N.S. Yr. 3 P.81

Describe and classify 3-D and 2-D shapes according to their properties.

Equipment

Paper, pencil, ruler

MathSphere

Concepts

Children should understand and begin to write, the following words:

shape, pattern, flat, solid, hollow, side, edge, face, straight, curved, round, circular, triangular, rectangular, pentagonal, hexagonal, octagonal, right-angled, vertex, vertices, layer, diagram, surface, point, pointed, corner, sort, make, build, draw, cube, cuboid, sphere, cone, cylinder, prism, hemi-sphere, circle, triangle, rectangle, square, pyramid, hexagon, octagon, quadrilateral, semi-circle.

In **3-D shape** work, the main new concept is that of a prism. A prism is a shape that has the same cross-section and same size throughout its length. Some shapes such as cones and square based pyramids have the same shape throughout their length (ie circle and square respectively), but they are not prisms because the size of the circle or square changes as you move from one end to the other.

There are many near prisms in real life (e.g. rulers, pencils, cans, chocolate boxes, rolls of sticky tape and exercise books), although they often have a small part such as the point of a pencil which prevents it being a pure prism. Children can generally be taught to ignore these annoying parts that manufacturers will insist on adding to spoil our maths lessons!

Children should also continue to describe solid shapes with increasing definition and precision and be more able to recognise similarities and therefore be more able to classify shapes according to their properties.

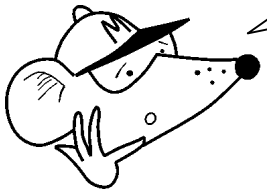
In **2-D shape** work, the main new concept is that of a quadrilateral. A quadrilateral is a flat shape with four straight sides. Examples that are already familiar to children are squares, rectangles, rhombuses and parallelograms (although they may not yet know the names of the more difficult ones).

They should be able to recognise more difficult properties, in particular the right angle, and be able to classify shapes according to more difficult properties.

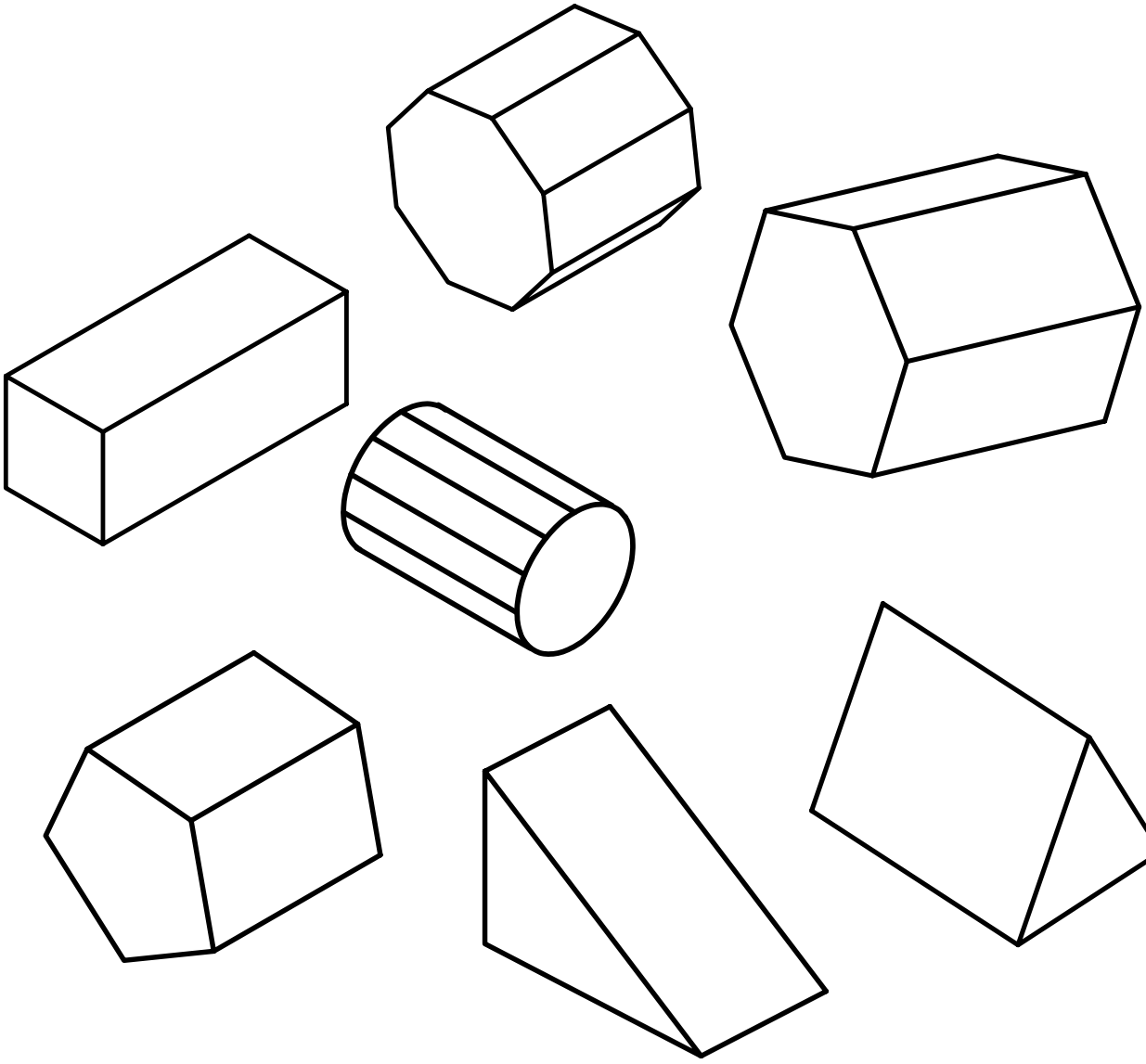
They should also realise that some shapes belong to larger families, e.g. squares are really just a special type of rectangle and rectangles are just a special type of quadrilateral.

Divvy, do you know what a **prism** is?

Isn't that a place where naughty Maths Rats have to go?



No silly, that's a prison. A **prism** is a solid that is the same shape and size all the way down like these below:



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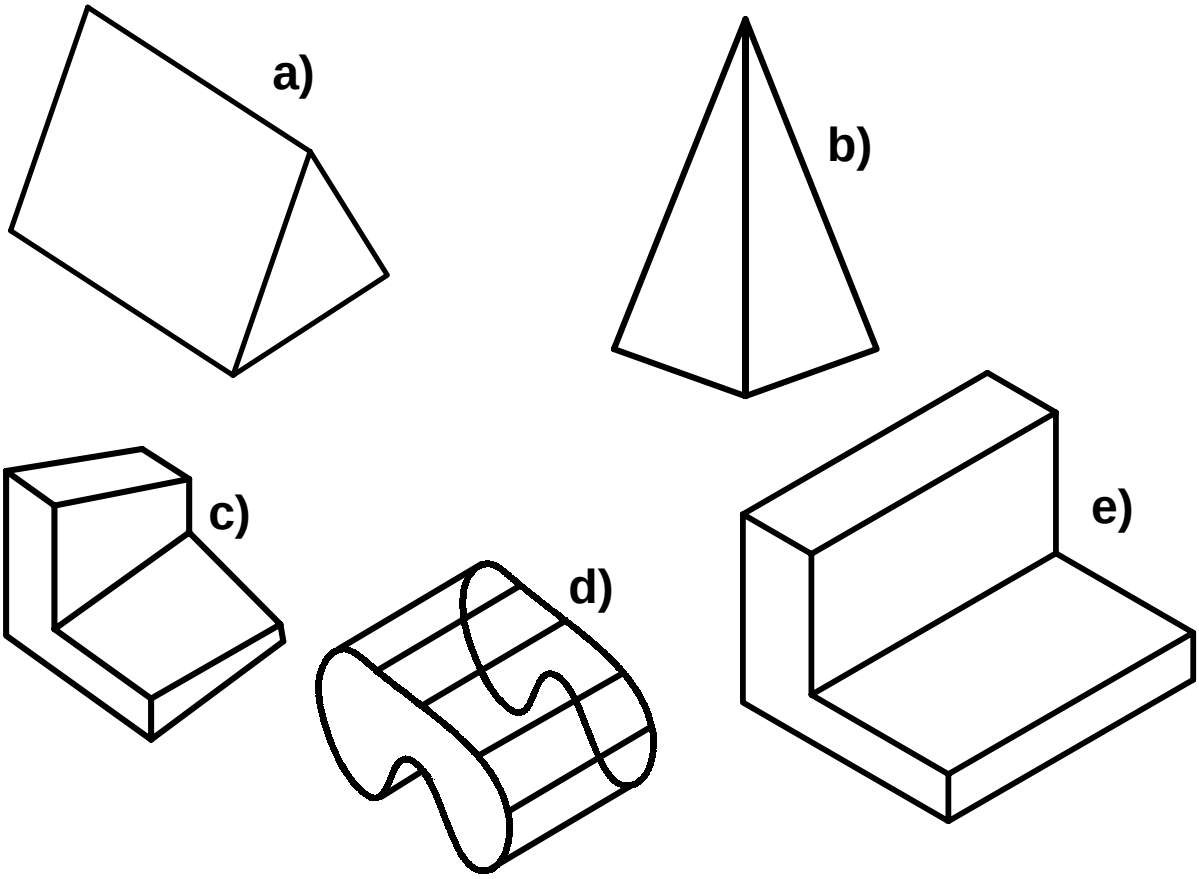
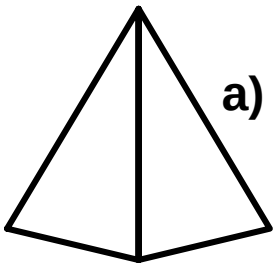
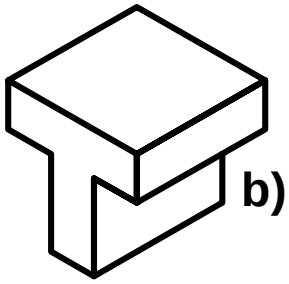
Which of these shapes are prisms?

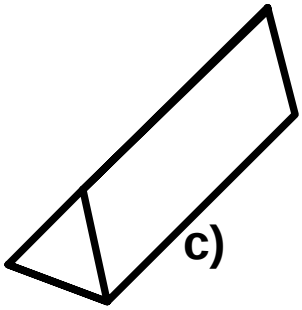


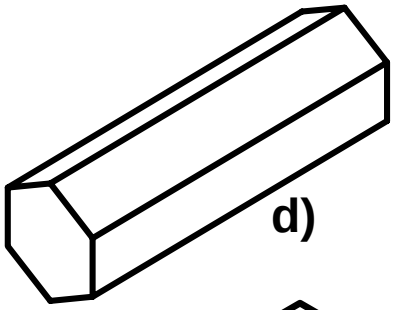
In this box write the names of some prisms you have found.

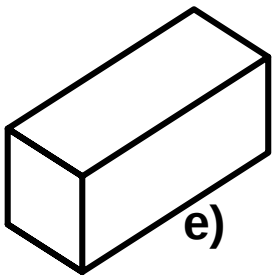
Join each shape to its name.

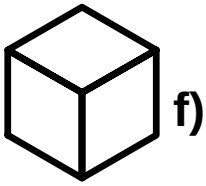


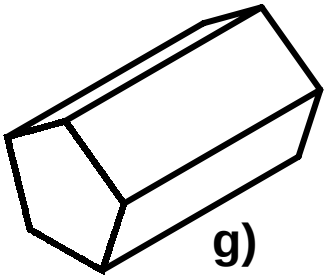


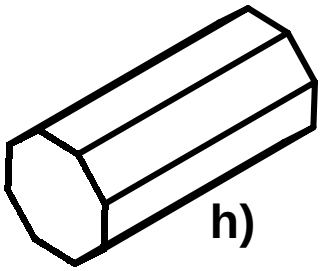


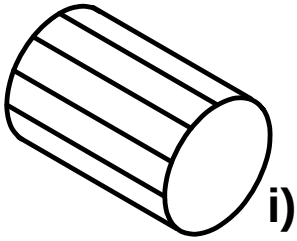












Cube

Triangular Prism

Cuboid

Hexagonal Prism

Cylinder

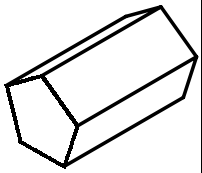
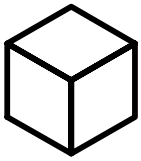
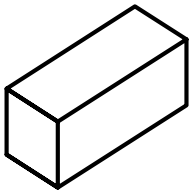
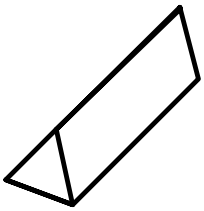
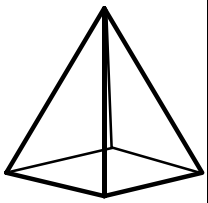
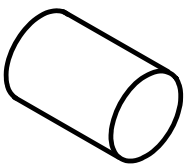
Pentagonal Prism

'T' Shaped Prism

Octagonal Prism

Pyramid

Fill in the table for the shapes below. One has been done for you.

Shape	Prism?	Number of Faces	Number of Edges	Number of Vertices
	Yes	7	15	10
				
				
				
				
				

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Describe the shapes below. One has been done for you.

A pentagonal prism has two identical pentagonal faces at opposite ends and five rectangular faces.

A cuboid has _____

_____

_____

A cube has _____

_____

_____

A triangular prism has _____

_____

_____

A cylinder has _____

_____

_____

A pyramid has _____

_____

_____

Describe the shapes below.

A hexagonal prism has _____

_____

_____

An octagonal prism has _____

_____

_____

A cone has _____

_____

_____

A sphere has _____

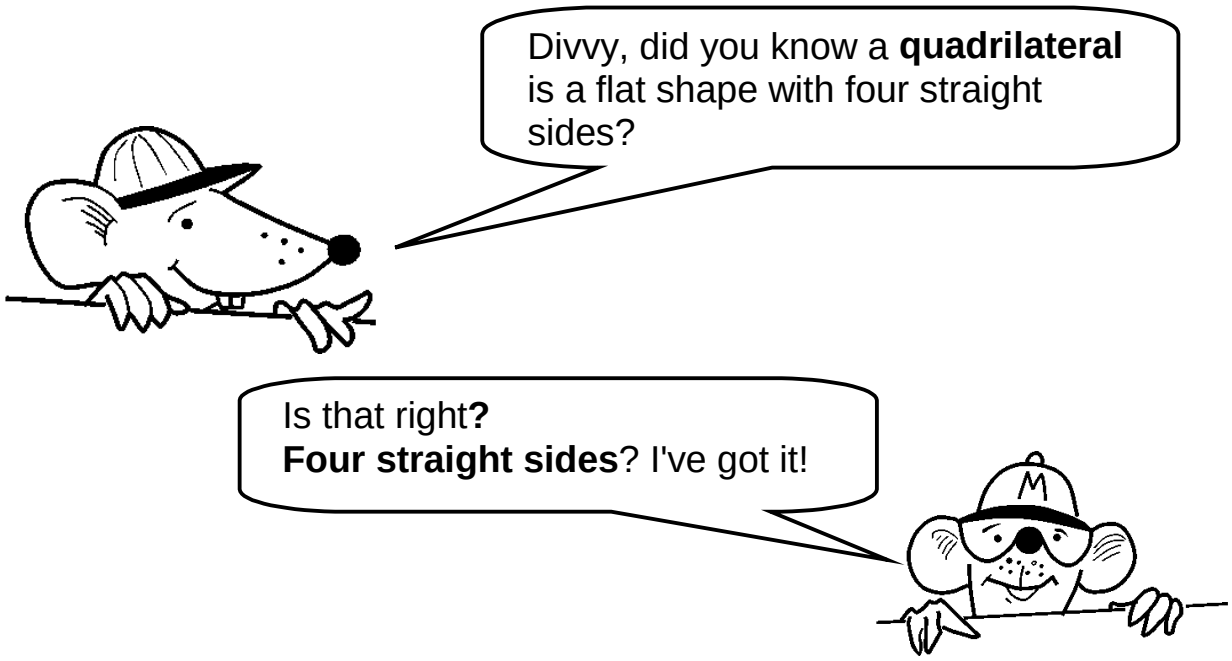
_____

_____

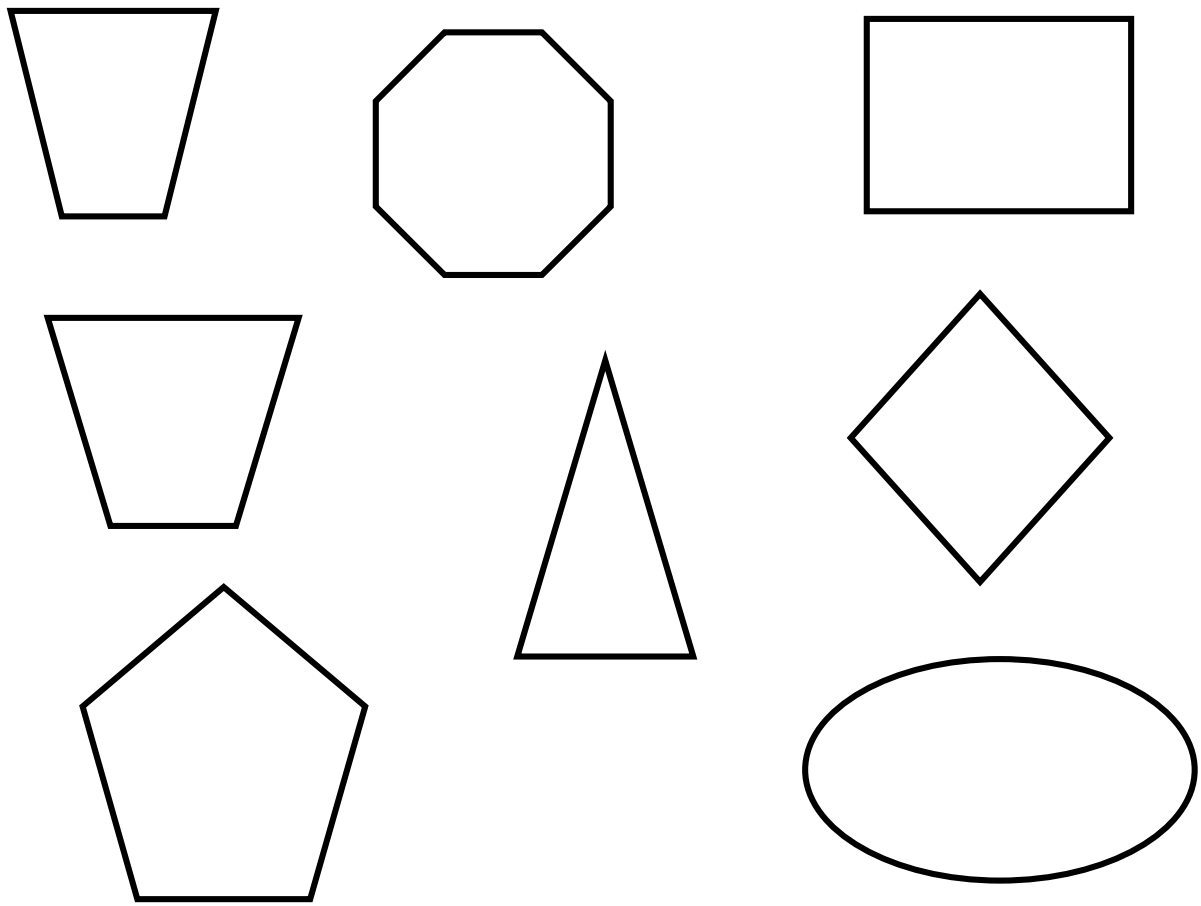
A hemi-sphere has _____

_____

_____



Can you see which shapes are quadrilaterals? Colour them in.



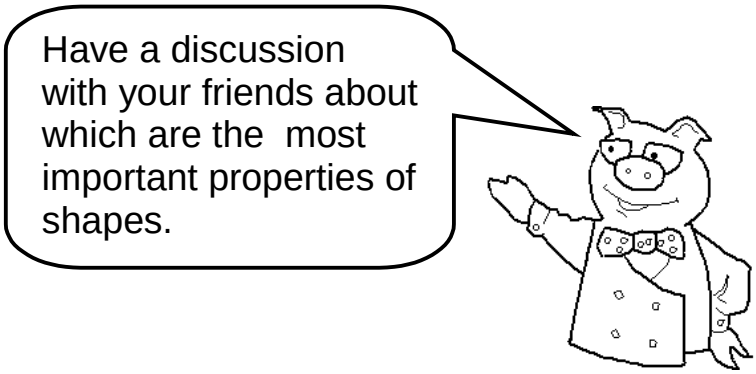
On the next page, point to shapes which:

a) are not right-angled

b) have one right angle

c) have two right angles

d) are quadrilaterals



e) have all the sides the same length

f) have eight sides

g) have twelve sides

h) are pentagons

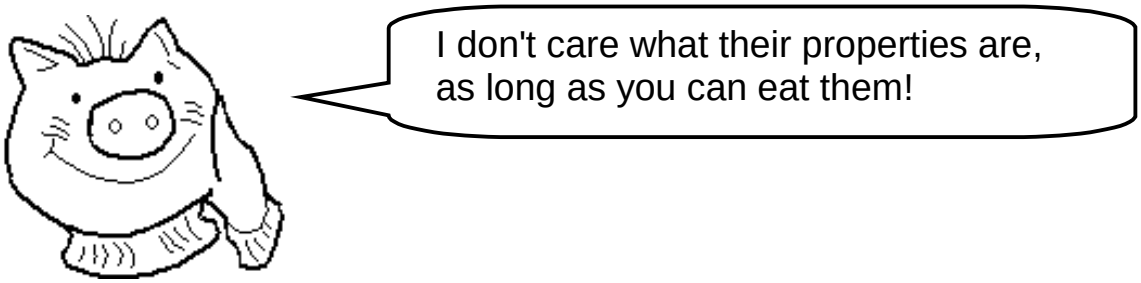
i) have one curved edge

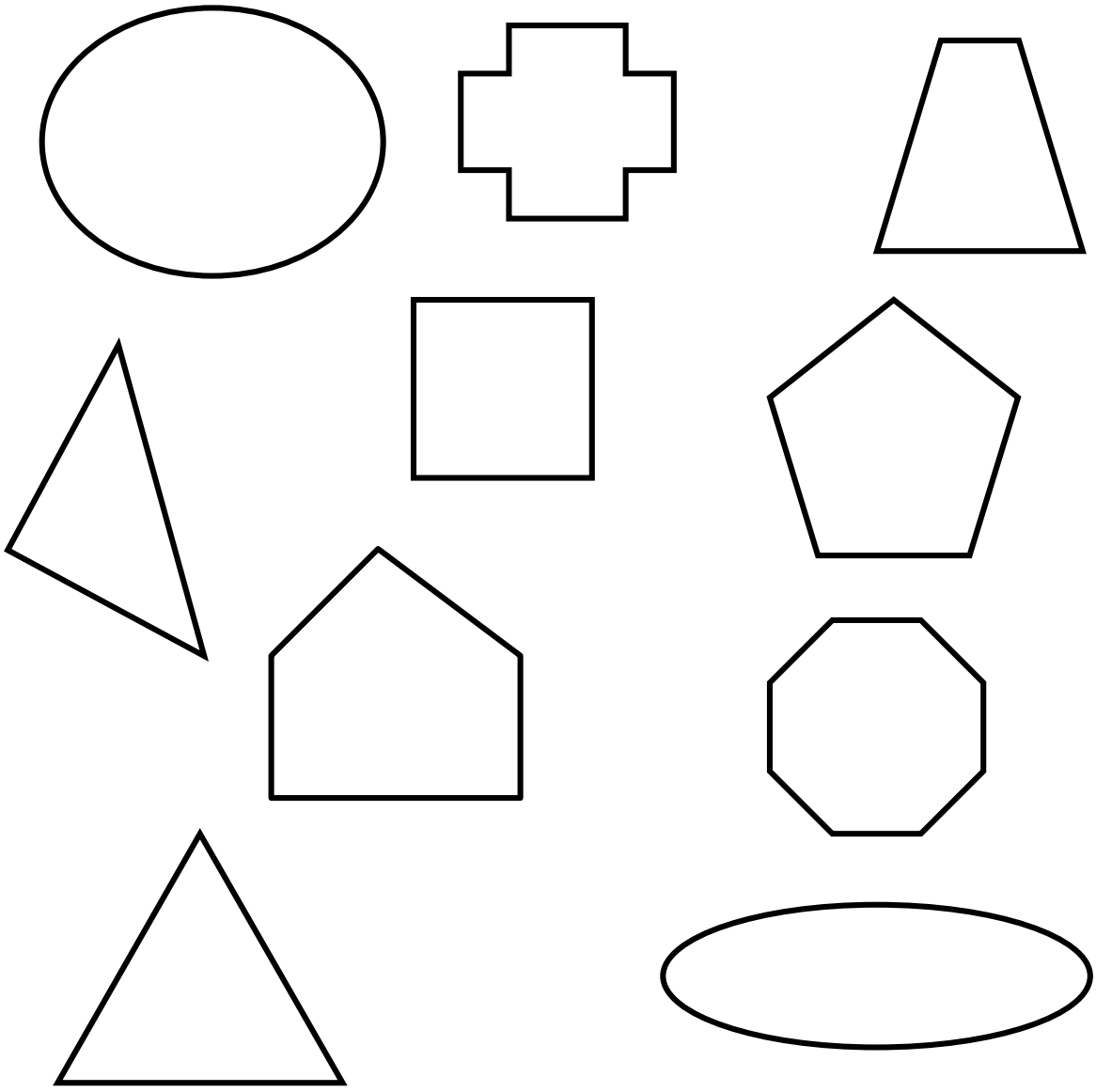
j) have more than five angles

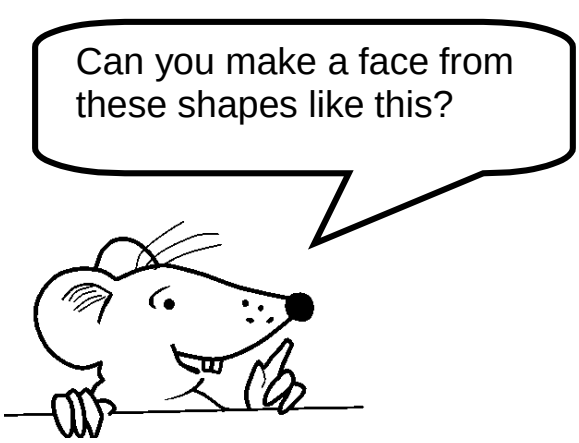
k) have four right angles and opposite sides equal lengths

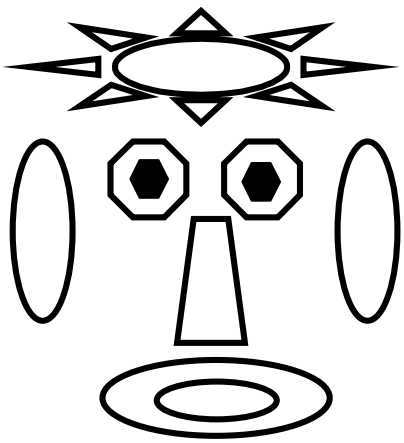
l) have eight sides and opposite sides are equal in length

m) have five round shapes, one quadrilateral, two hexagons, two octagons and eight triangles.









Answers

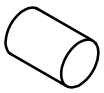
Page 4

a) d) and e) are prisms.

Page 5

a) pyramid
b) 'T' shaped prism
c) triangular prism
d) hexagonal prism
e) cuboid
f) cube
g) pentagonal prism
h) octagonal prism
i) cylinder

Page 6

Shape	Prism?	Number of Faces	Number of Edges	Number of Vertices
	**Yes**	**7**	**15**	**10**
	Yes	6	12	8
	Yes	6	12	8
	Yes	5	9	6
	No	5	8	5
	Yes	3	2	0