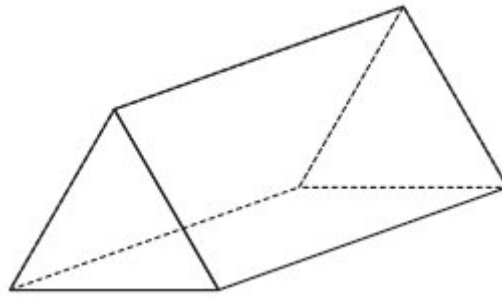


1.



The diagram shows a triangular prism.

The cross-section of the prism is an equilateral triangle.

(a) On the diagram, draw in **one** plane of symmetry for the triangular prism.

(2)

(b) In the space below, draw a sketch of a net for the triangular prism.

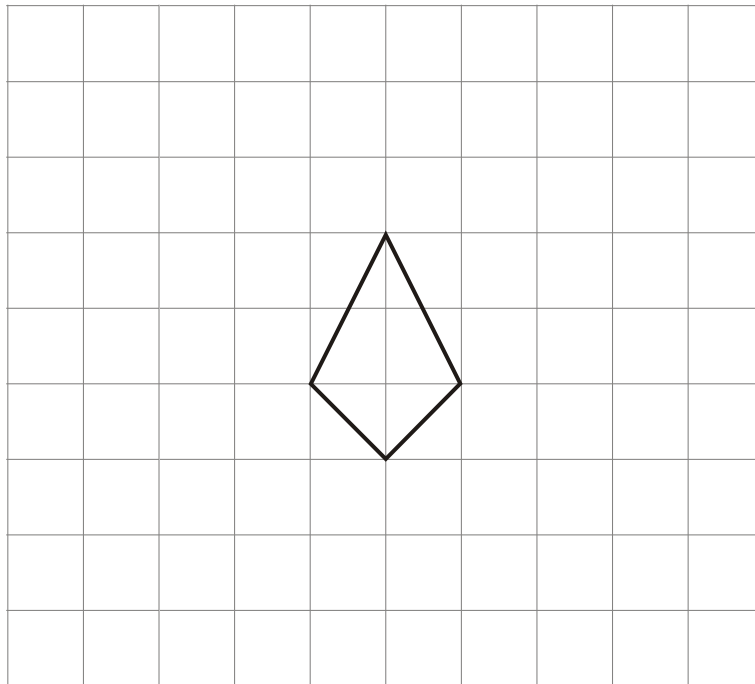
(2)

- (c) In the space below, use ruler and compasses to **construct** an equilateral triangle with sides of length 6 centimetres.
You must show all construction lines.
One side of the triangle has already been drawn for you.



(2)
(Total 6 marks)

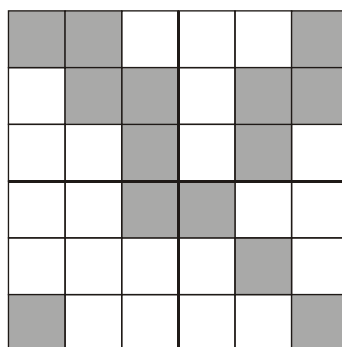
2. On the grid, show how this kite will tessellate.
You should draw at least 8 kites.



(Total 2 marks)

3. A pattern is to be drawn.
It will have rotational symmetry of order 4.
The pattern has been started.

By shading **six** more squares, complete the pattern.



(Total 3 marks)

- | | | | |
|----|---|---|------------|
| 1. | (a) Correct plane | 2 | |
| | <i>B2 for a correct plane defined by showing at least 2 lines.
(B1 for a line of symmetry on one face)</i> | | |
| | (b) Correct net | 2 | |
| | <i>B2 cao
(B1 for 2 equilateral triangles joined appropriately to at least one rectangle or for 1 equilateral triangle joined appropriately to one of 3 rectangles)</i> | | |
| | (c) Correct drawing | 2 | |
| | <i>B1 for two extra sides of length 6cm ($\pm 2mm$)
B1 for construction arcs 6cm from each of the ends of the given line.</i> | | [6] |
| 2. | | 2 | |
| | <i>B2 for fully correct with 5 or more additional kites
(B1 for a tessellation of 4 kites, 2 of which must be inverted, ignore remainder of diagram)</i> | | [2] |
| 3. | Correct diagram | 3 | |
| | Shade squares | | |
| | <i>B3 (B1 for each correct quadrant)</i> | | [3] |

1. Specification A

Foundation Tier

- (a) 55% of candidates were able to identify a line which went some way to define a plane of symmetry – however only 14% of candidates could fully define a plane by drawing at least two or the lines contained within it.
- (b) This part of the question was successfully answered by 40% of candidates though nets often consisted of two triangles, one rectangle and two trapezia or parallelograms. The 16% of candidates that did this gained partial credit for their answers.
- (c) 33% of candidates drew a triangle with sides of the correct length. However only 16% obtained the mark available for showing construction lines – i.e. arcs drawn using a pair of compasses.

Intermediate Tier

Most candidates gained at least one mark in part (a) but almost half drew only a line of symmetry, usually through the front triangular face or right-hand rectangular face. The triangular cross-section tended to be drawn most often by those scoring full marks.

Part (b) was well answered with three quarters of candidates gaining both marks. Most drew at least a rectangle with a triangle at each end but some then added two trapeziums rather than two more rectangles. A few candidates appeared not to know what a net is.

In part (c) the majority of candidates gained at least one mark. Many demonstrated a good understanding of construction and drew an accurate triangle with correct arcs. About 20%, though, measured the sides or used a protractor. These attempts were usually sufficiently accurate for one mark to be awarded.

Specification B

In part (a) drawing in one plane of symmetry did not always appear to have been previously experienced by the candidate in spite of this type of question making appearances on past papers. Just over 30% failed to score any marks on this question. The “plane” was often shown as a single line on a face and thus represented a line of symmetry rather than the plane.

The ‘net’ for the triangular prism was handled better with over 40% scoring both marks, but there were many variations on the theme not all of which were rewarded. The word ‘net’ seemed to be a mystery to several candidates resulting in the painstakingly drawing fishing nets to cover the shape.

The construction of the equilateral triangle produced many credit worthy attempts although the nature of the actual construction was somewhat lacking. To gain the full two marks it required the construction arcs to be shown but only 20% managed this approach.

2. The kite proved to be an easy shape to tessellate for the candidates who knew what they were attempting to do. Many candidates, though, had no idea about tessellations and symmetrical patterns were common. In some responses, the kites were not joined, in others they overlapped.

3. Paper 8

Very few candidates scored three marks, with very little evidence of tracing paper being used. Many earned a mark for the top right hand quadrant but then shaded five more squares by reflecting the top half of the diagram.

Paper 9

A significant number of candidates completed the pattern correctly. Often 1 mark only was scored for the correct ‘first quadrant’, confusing rotational symmetry with line symmetry, when candidates reflected in a horizontal axis.