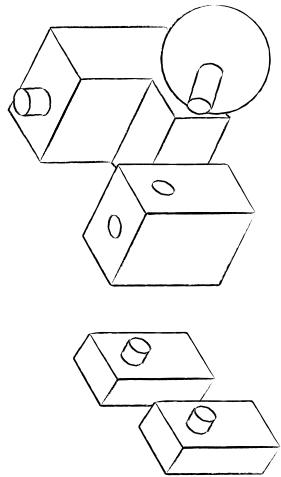


Section A

Answer all questions in this section.

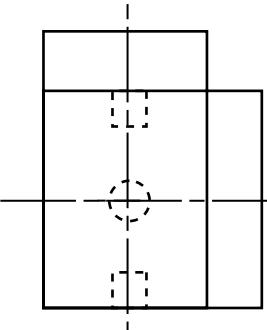
Sketches of the five parts of a toy figure are shown below.



- A1** (a) Complete the full size orthographic views of the fully assembled toy figure by:

 - (i) adding the missing lines to the plan; [4]
 - (ii) adding the missing hidden detail to the front view; [3]
 - (iii) adding the projection symbol in the given box. [3]

plan



A technical drawing consisting of several elements. On the left, there is a large circle centered on a horizontal dashed line. To the right of the circle is a stepped rectangular profile. The profile has a vertical height of four units, divided into three segments: a top segment of height 2, a middle segment of height 1, and a bottom segment of height 1. The total width of the profile is 5 units, divided into five equal-width vertical columns. The profile is bounded by solid lines, and internal features are shown with dashed lines.

front view

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projection symbol

100

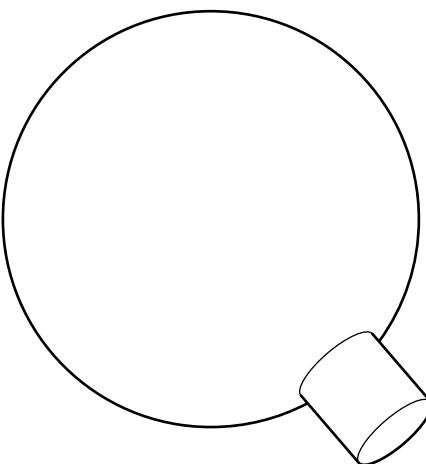
100

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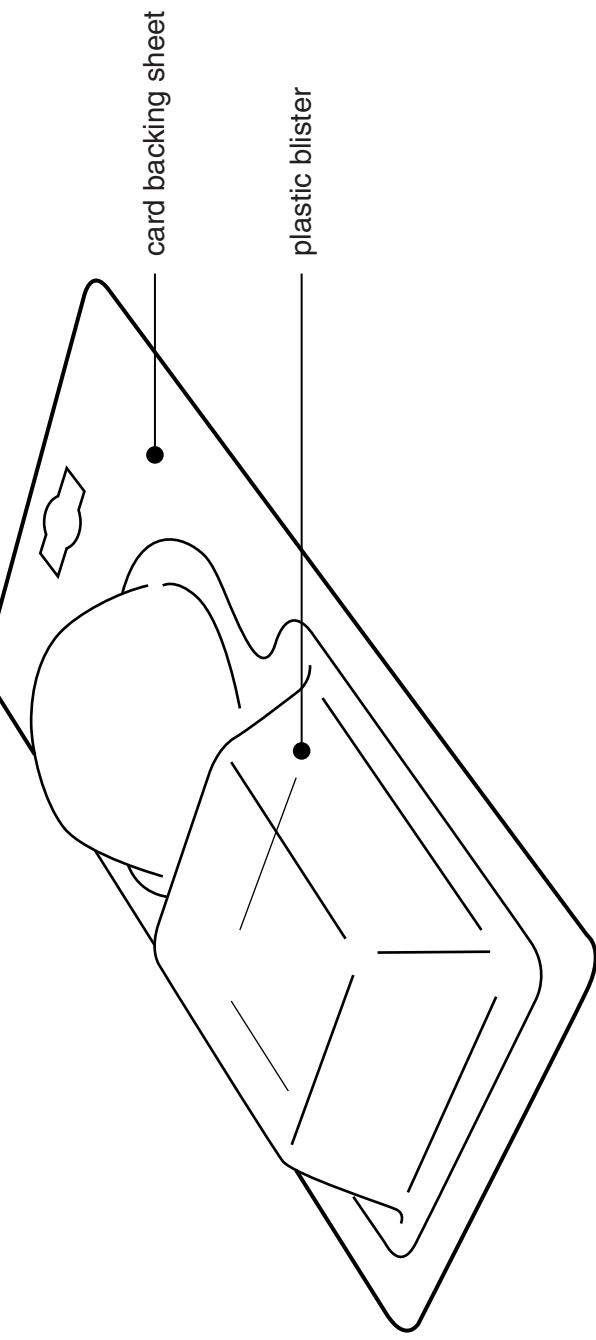
For
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use

A2 (a) Render the head of the toy figure below to make it appear spherical.

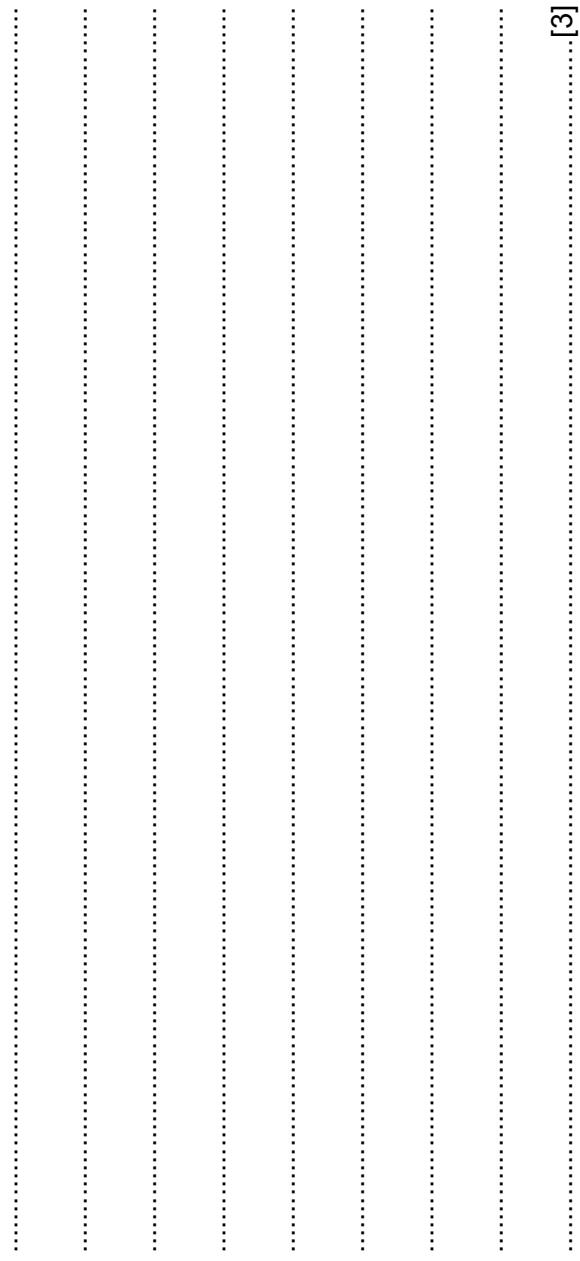
- (b) A stencil is to be used to add a name to the toy figure. In the space below use sketches and notes to show how to use a stencil. [2]



A3 The parts of the toy figure are sold in the blister package shown below.



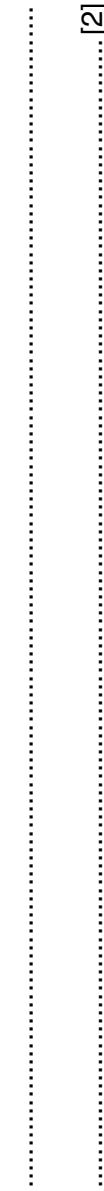
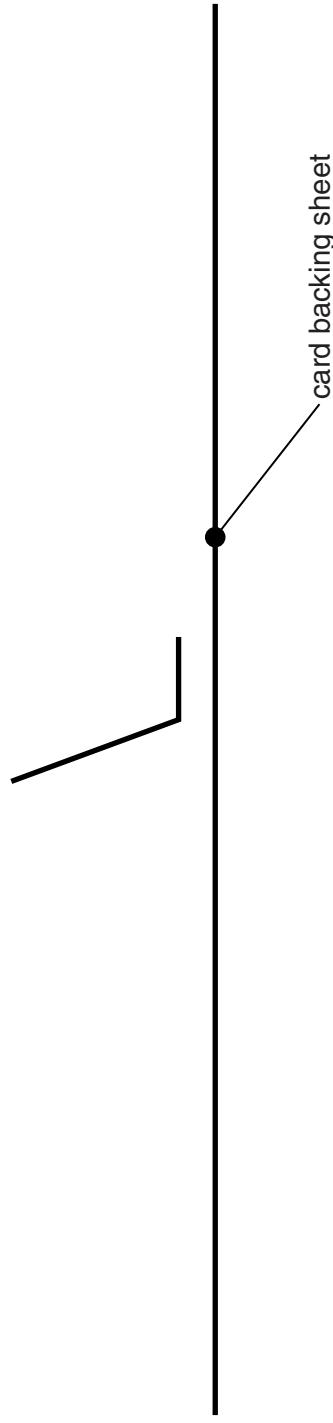
- (b)** The plastic blister is made by vacuum forming. Describe **three** main features of the former required to vacuum form the blister successfully.



- (a)** In the space below complete the exploded sectional view of the blister package. [4]
- (c)** The backing sheet of the blister package is made from card.

- (i)** In the space below draw the symbol used to show that the card can be recycled. [2]

- (ii)** Explain **one** reason why the card should be recycled.

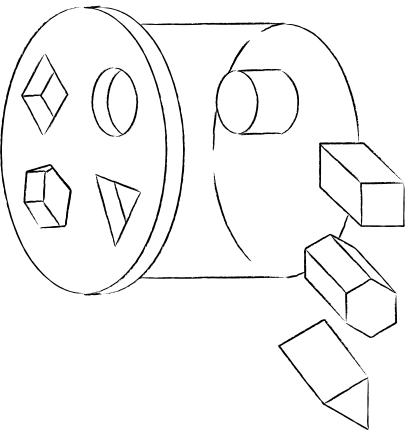


[2]

Section B

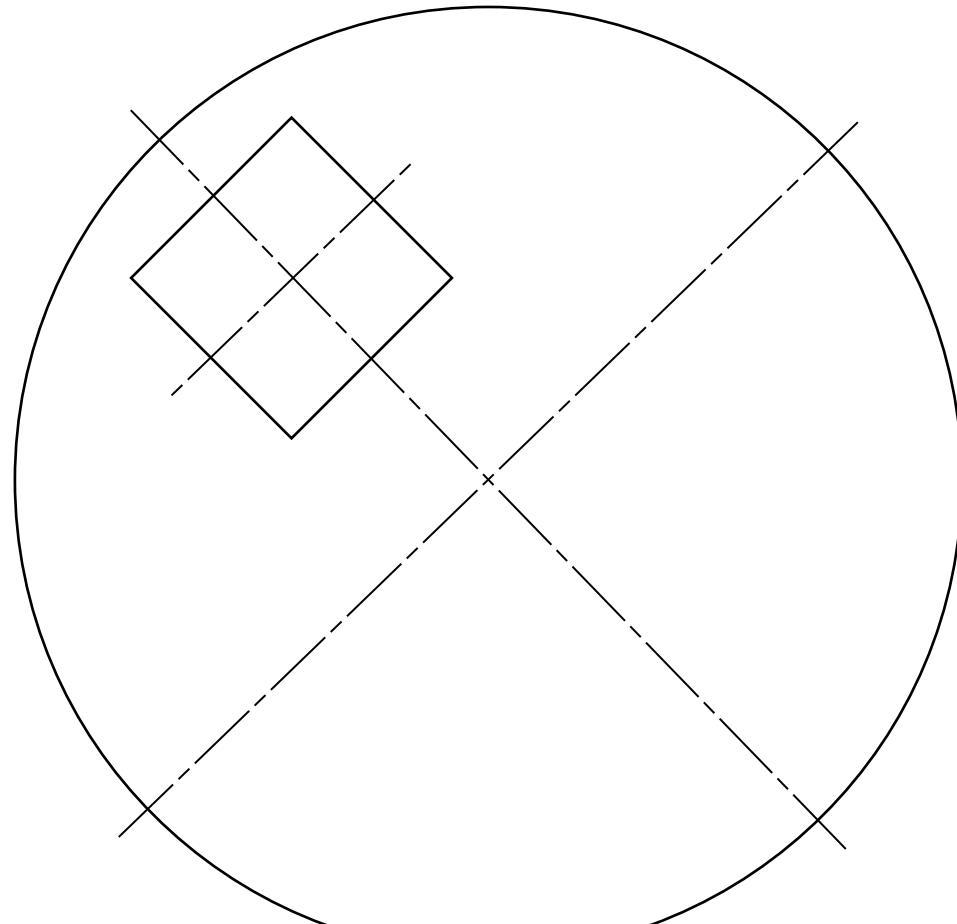
Answer either question B4 or B5.

(b) The shape sorter is available in four different colours. The 2014 sales for the four different coloured shape sorters is shown in the table below.



- (a) On the centre lines below complete the $1 : 2$ scale drawing of the top flange of the channel by constructing additional features.

- | | |
|--------------------------------------------------------------------------------------------------------------|----------------------------------|
| <p>(i) a Ø60 circle;</p> <p>(ii) a 60 side equilateral triangle;</p> <p>(iii) a 40 side regular hexagon.</p> | <p>[3]</p> <p>[5]</p> <p>[5]</p> |
|--------------------------------------------------------------------------------------------------------------|----------------------------------|



- (c) A modified design for the top of the shape sorter is to be produced by CAD.

- (i) Complete the words below to show the meaning of the word CAD.

Computer A D

(iii) A line drawing of an elliptical shape has been found on the internet and is to be used in the modified design for the top of the shape sorter. Explain how to capture this elliptical shape from the internet and use it in the CAD drawing.

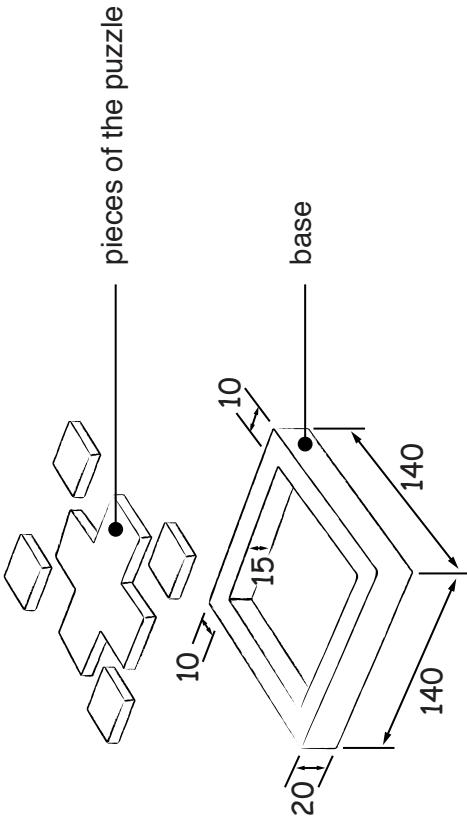
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Other Names

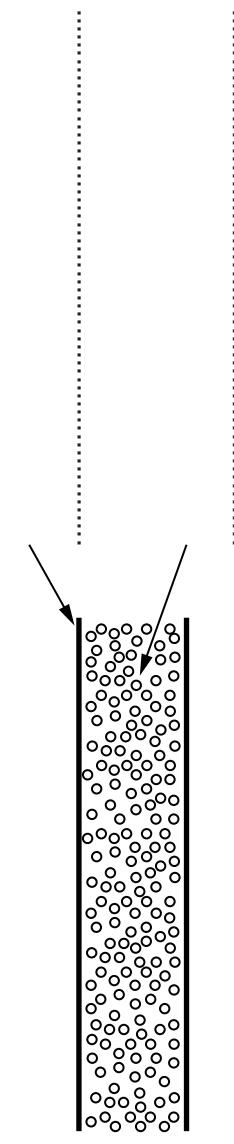
B5 A sketch of a puzzle is shown below.



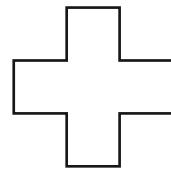
(a) The pieces of the puzzle are made from foamboard.

(i) Label the materials on the sectional view of a piece of foamboard below.

[2]



(b) A drawing of one of the pieces of the puzzle is shown below. Construct a scale 1 : 3 enlargement of the given piece of the puzzle. [10]



- (c) From the start point A draw a 1 : 2 scale isometric view of the base of the puzzle. Do **not** include the pieces of the puzzle. [9]
- (ii) Complete the list below to show three pieces of equipment that would be used to cut the foamboard. [2]

1. A cutting mat

2.

3.

- (iii) Explain **one** reason why foamboard is considered a suitable material for the pieces of the puzzle. [2]
-
....
....

→ A