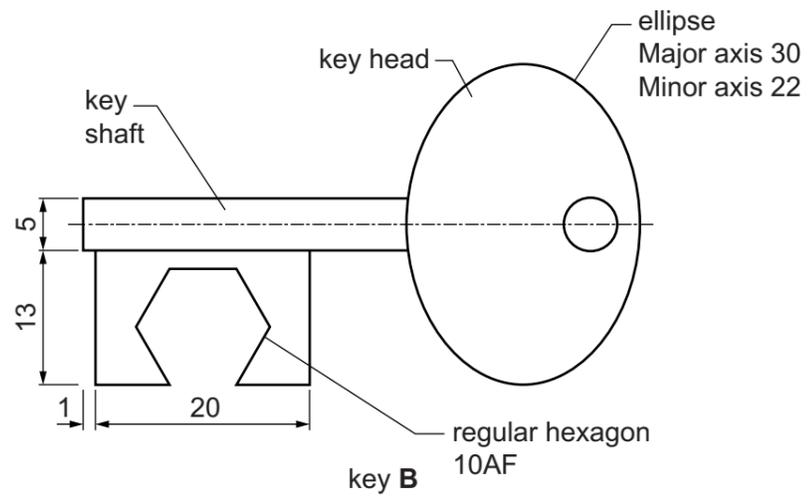
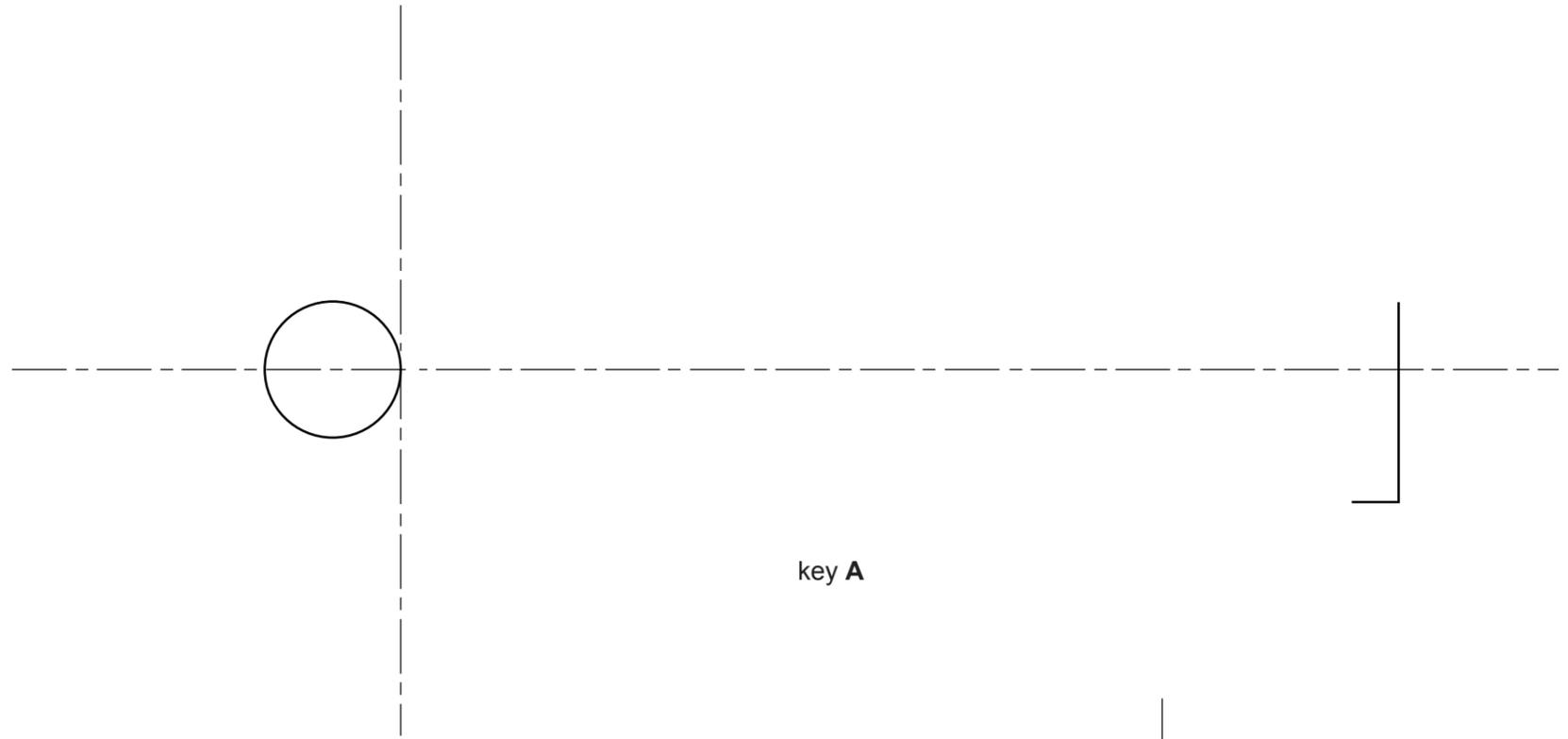
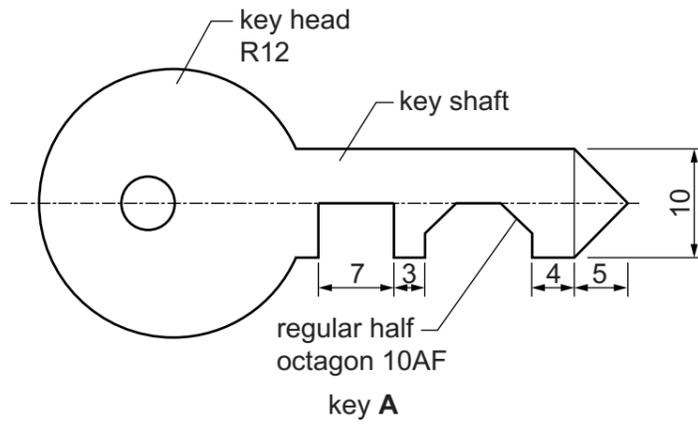


Section A

Answer **all** questions in this section.

A1 Two types of key are shown below.



(a) Complete the drawing of key **A** to a scale of 4:1 by adding:

- (i) the head and shaft [2]
- (ii) the half octagon cut-out [3]
- (iii) the rectangular cut-out. [1]

(b) Complete the drawing of key **B** to a scale of 4:1 by adding:

- (i) the head and shaft [6]
- (ii) the rectangle with the hexagonal cut-out. [4]

For
Examiner's
use

0445/53 May/June 2023 **1 hour**
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Candidate Number

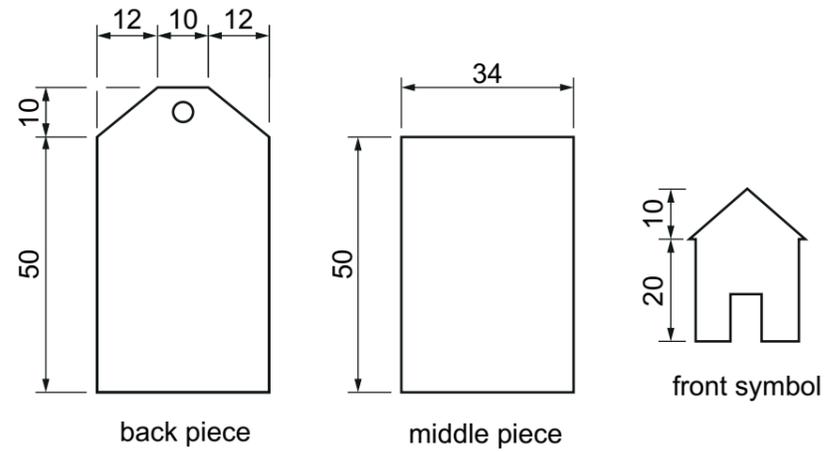
Candidate Name

[Turn over]

A2 A keyring fob is made from 3 pieces of 5 mm thick acrylic sheet glued together.

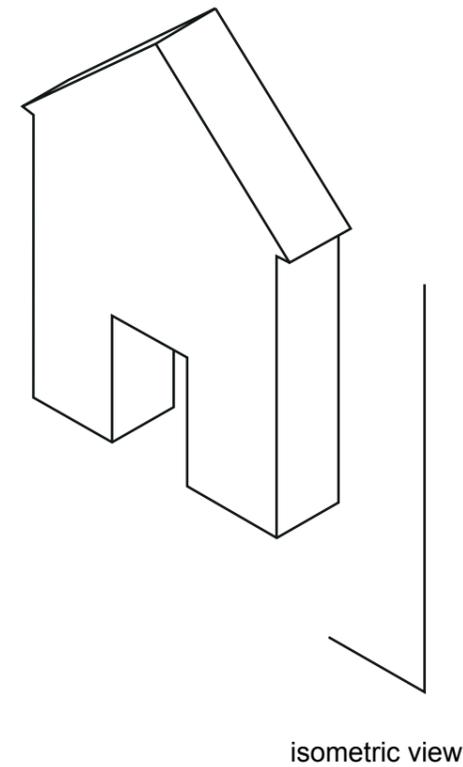
The pieces of acrylic are shown below.

The front symbol shows that the keys are for a house.



Complete the isometric view of the assembled keyring fob to a scale of 2:1 by adding:

- (i) the middle piece [3]
- (ii) back piece. [4]



A3 A designer wants to make another keyring fob.

The keyring fob will be used for car keys.

The keyring fob will have the same back piece and middle piece but the front symbol will be different.

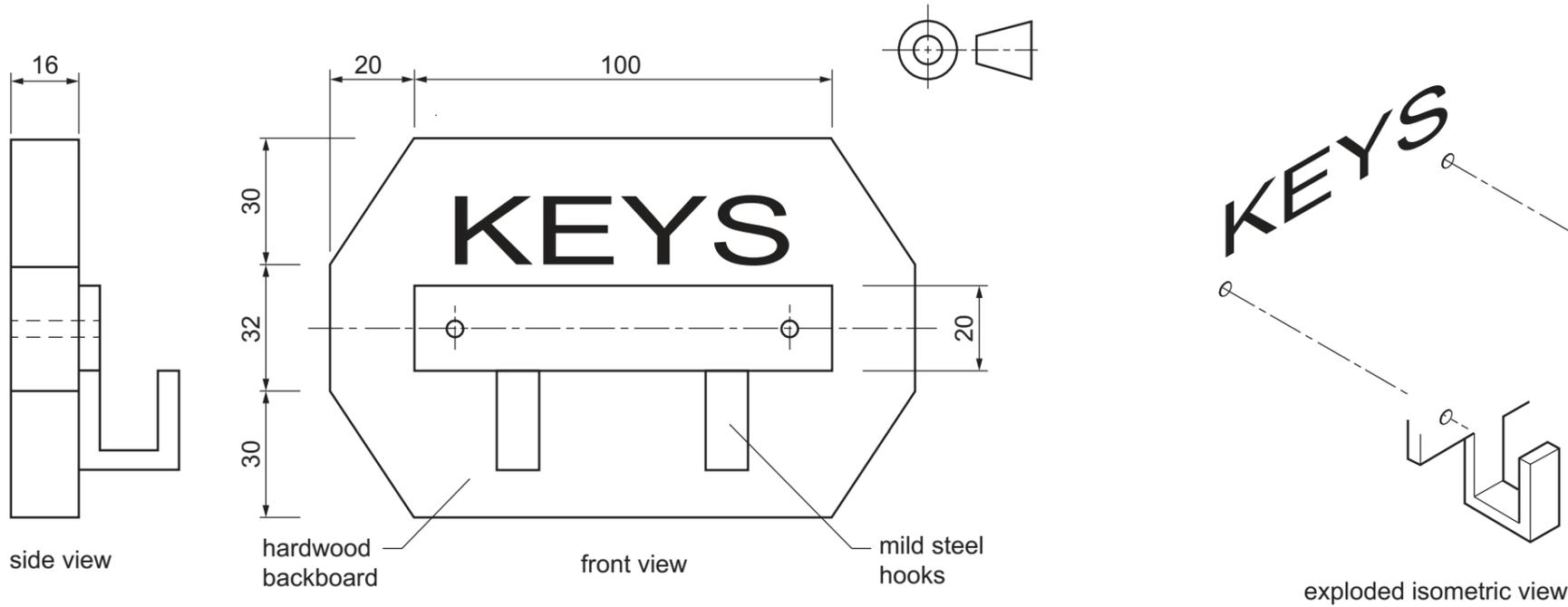
Draw a suitable design for the front symbol that fits in the shape below. [2]



Section B

Answer **one** question, **either** Question **B4** or **B5**, from this section.

B4 Orthographic views of a design for a key rack are shown below.



(a) Complete the exploded isometric view of the key rack to a scale of 1:2. [12]

(b) The KEYS lettering is to be spray painted on to the hardwood backboard using a card stencil.

(i) Describe how CAD/CAM could be used to produce the card stencil.

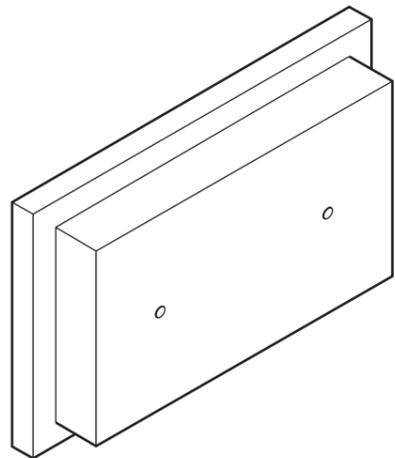
.....

 [3]

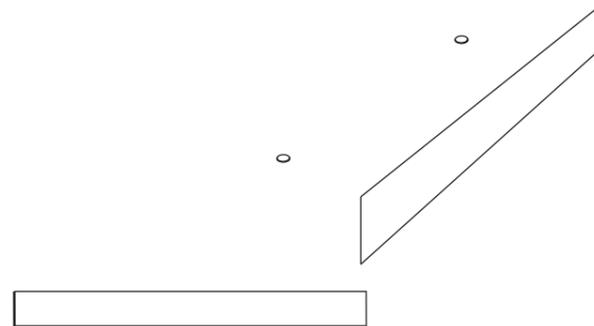
(ii) Describe **one** advantage of using a stencil compared to painting the lettering on by hand.

.....
 [2]

(c) An alternative design for the backboard of the key rack is shown below.



Complete the estimated one-point perspective view of the backboard. [5]



estimated one-point perspective view

(d) Information about the types of keys used most often is shown in the table below.

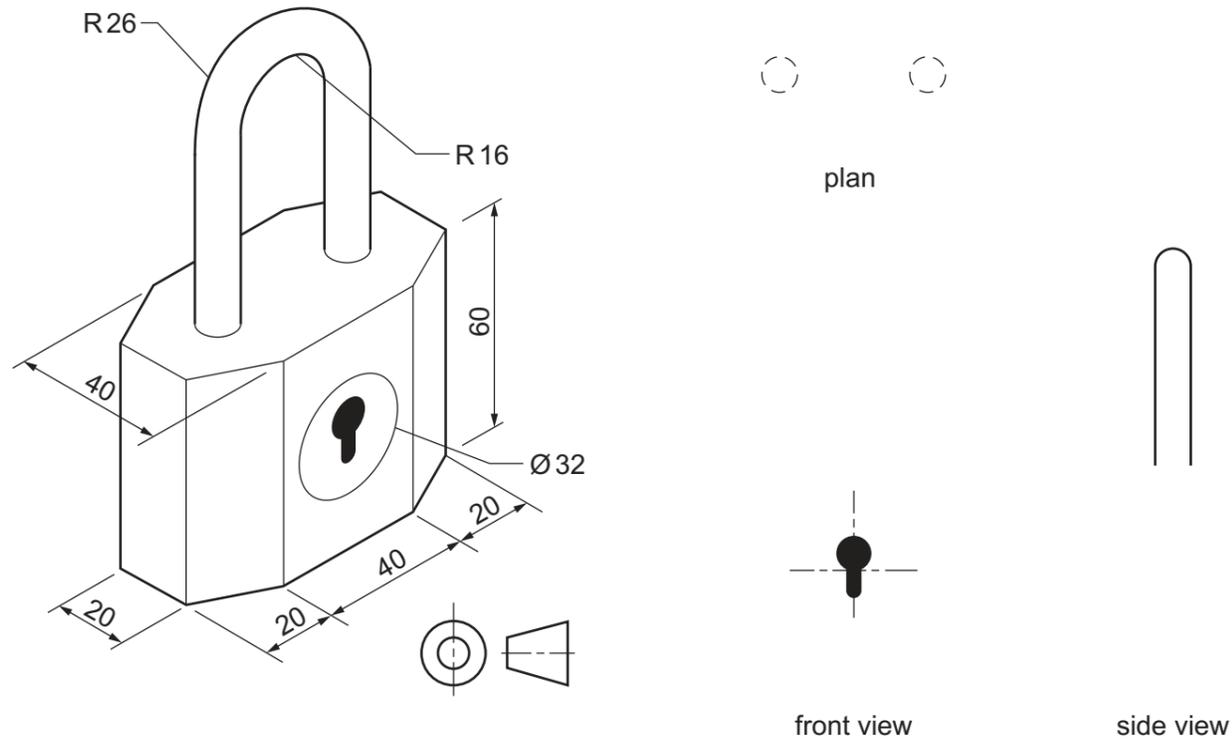
| Key type | House | Car | Work |
|----------|-------|-----|------|
| Number | 54 | 36 | 30 |

Draw and label a pie chart to display the information shown in the table. [3]

For Examiner's use

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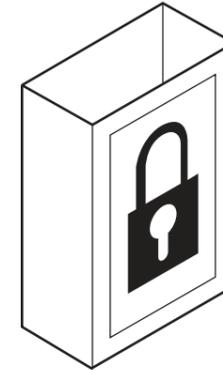
B5 A padlock is shown below.



(a) Complete the orthographic views of the padlock to a scale of 1:2. [12]

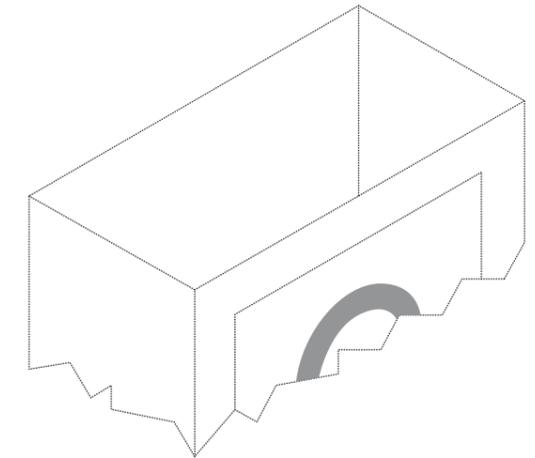
(b) An incomplete design of a package for the padlock is shown below.

The package is made from thin card.



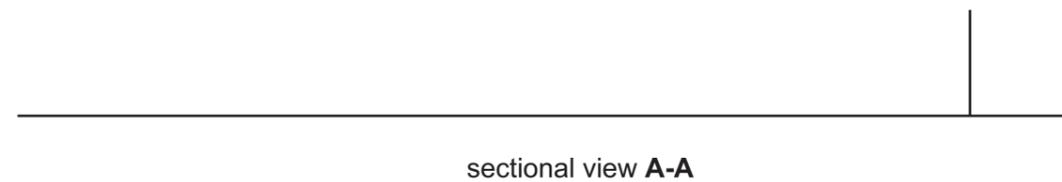
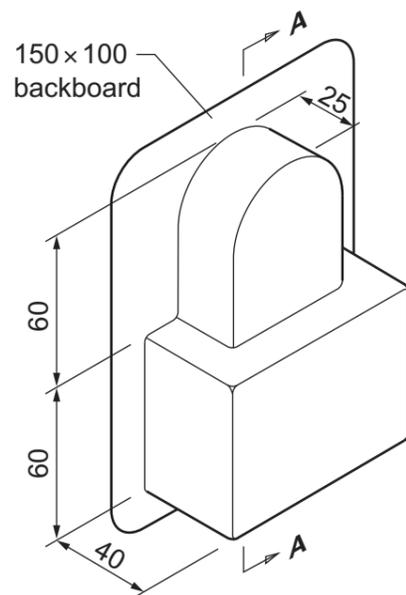
Complete the design of the package by adding a lid to the template on the right.

The lid must hold the padlock inside when turned upside down. [4]



(c) Another design for the padlock package is shown below.

The package is vacuum formed from thin sheet plastic.

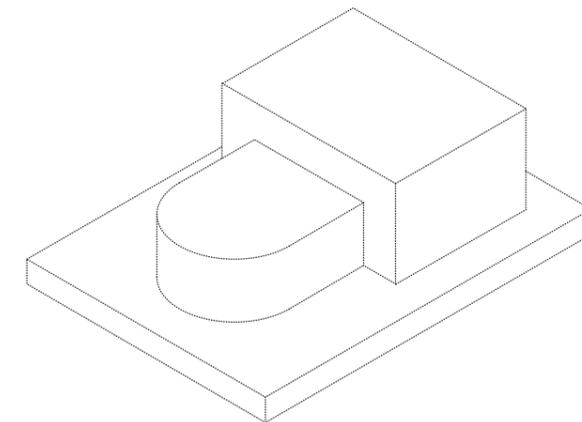


sectional view **A-A**

Complete the sectional view **A-A** through the vacuum formed package. [4]

(d) The mould for the vacuum formed package is shown below.

(i) Apply thick and thin line technique to the mould. [3]



(ii) Describe how the mould could be modified to make it easier to remove the vacuum formed plastic sheet.

.....

 [2]