

Candidate forename						Candidate surname					
Centre number						Candidate number					

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE

A564/01

DESIGN AND TECHNOLOGY

Resistant Materials

Technical Aspects of Designing and Making

WEDNESDAY 27 JUNE 2012: Morning

DURATION: 1 hour 15 minutes
plus your additional time allowance

MODIFIED ENLARGED

Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

None

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer ALL the questions in Section A AND Section B.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. If additional space is required you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is 60.
- All dimensions are in millimetres.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).

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SECTION A

Answer ALL questions

- 1 Fig. 1 shows a headphones stand made entirely from acrylic.

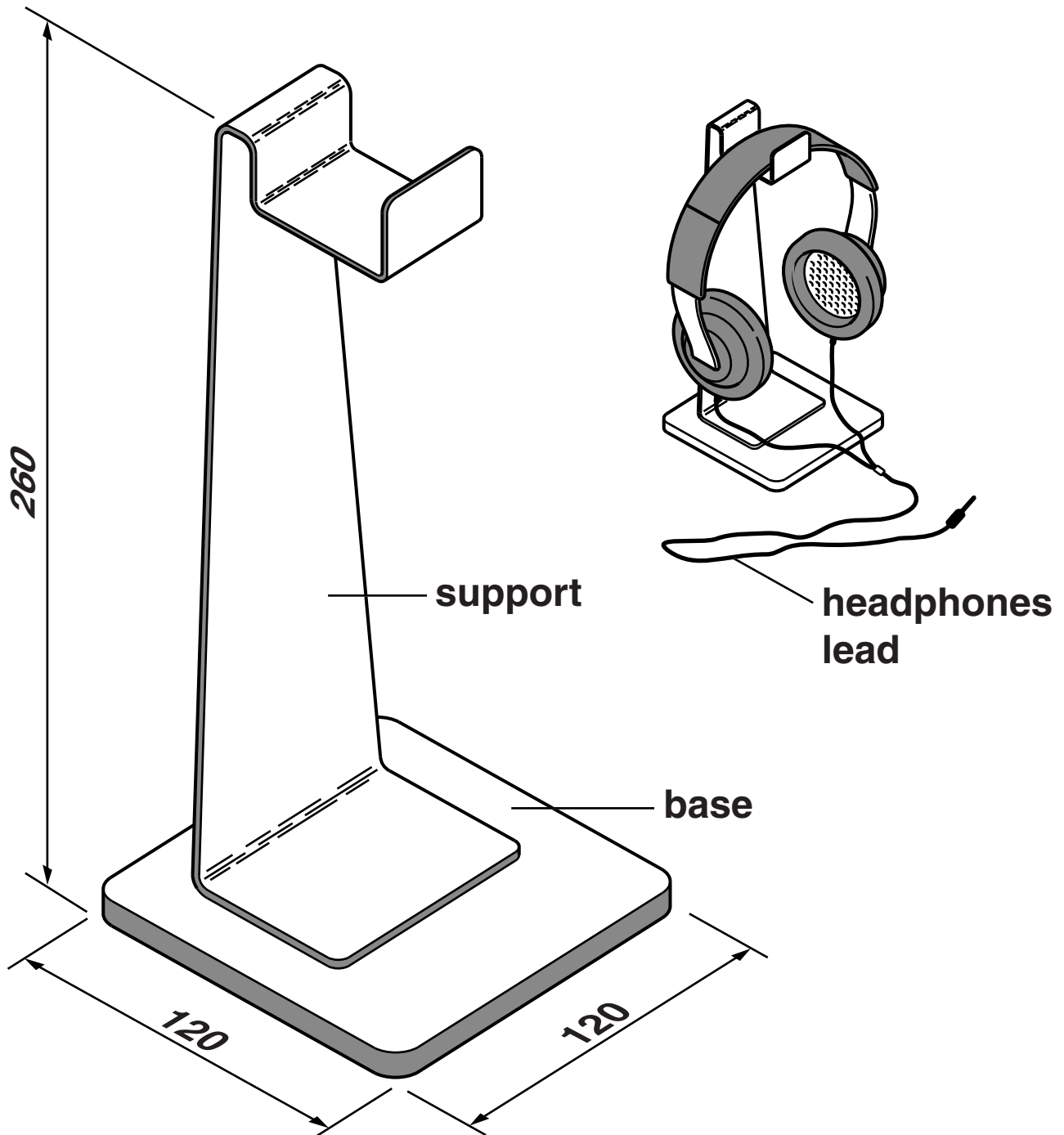


Fig. 1

- (a) State ONE performance characteristic of acrylic that makes it suitable for the headphones stand.**

_____ [1]

- (b) Give ONE reason why a scribe would not be suitable to mark out the bend lines.**

_____ [1]

- (c) Give ONE reason why the edges of the support would be finished to a high quality BEFORE it is bent to shape.**

_____ [1]

- (d) Give TWO reasons why it would be useful to make a model of the headphones stand before making it from acrylic.**

1 _____

2 _____ [2]

- (e) The support will be joined permanently to the base by means of acrylic cement.
Explain why an understanding of COSHH would be important when using acrylic cement.**

_____ [3]

- (f) Use sketches and notes to show a modification to the headphones stand that would allow the lead to be stored neatly. Include details of materials, sizes and constructions used.**

[4]

[Total:12]

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QUESTION 2 BEGINS ON PAGE 8

- 2 Fig. 2 (opposite) shows views of an incomplete guitar stand made from mild steel.
Leg A is brazed to the plates C.
Leg B can pivot as shown so that the stand can be closed for ease of carrying.

(a) Give ONE reason, other than 'strength' and 'cost', why mild steel is a suitable material for the guitar stand.

_____ [1]

(b) Fig. 3 shows the centre for a hole to be drilled in one of the legs to take a support.

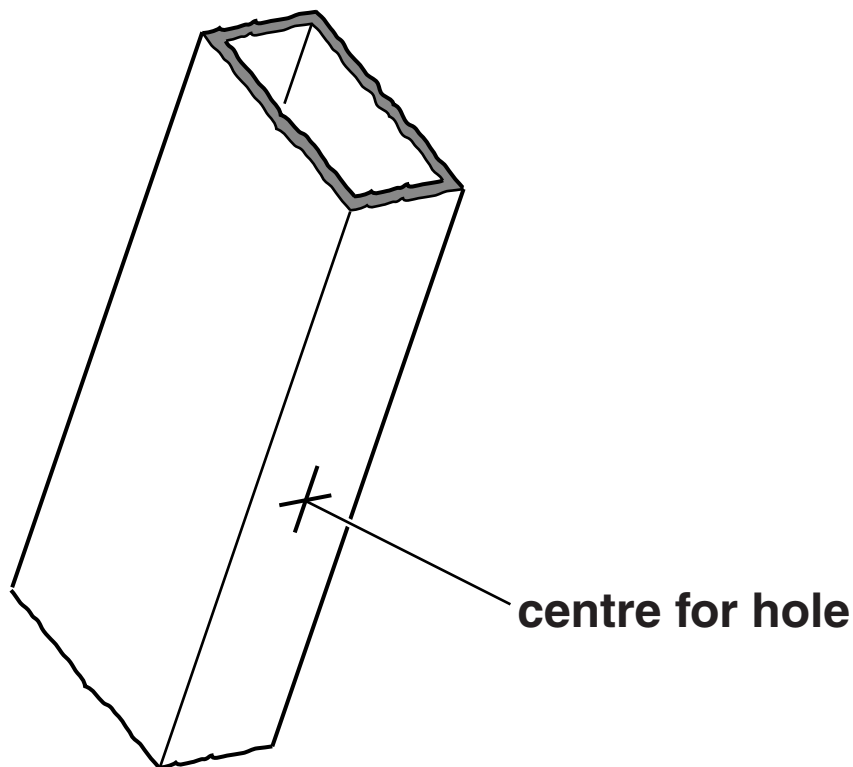


Fig. 3

Give TWO reasons why a centre punch would be used to mark the centre.

1 _____

2 _____ [2]

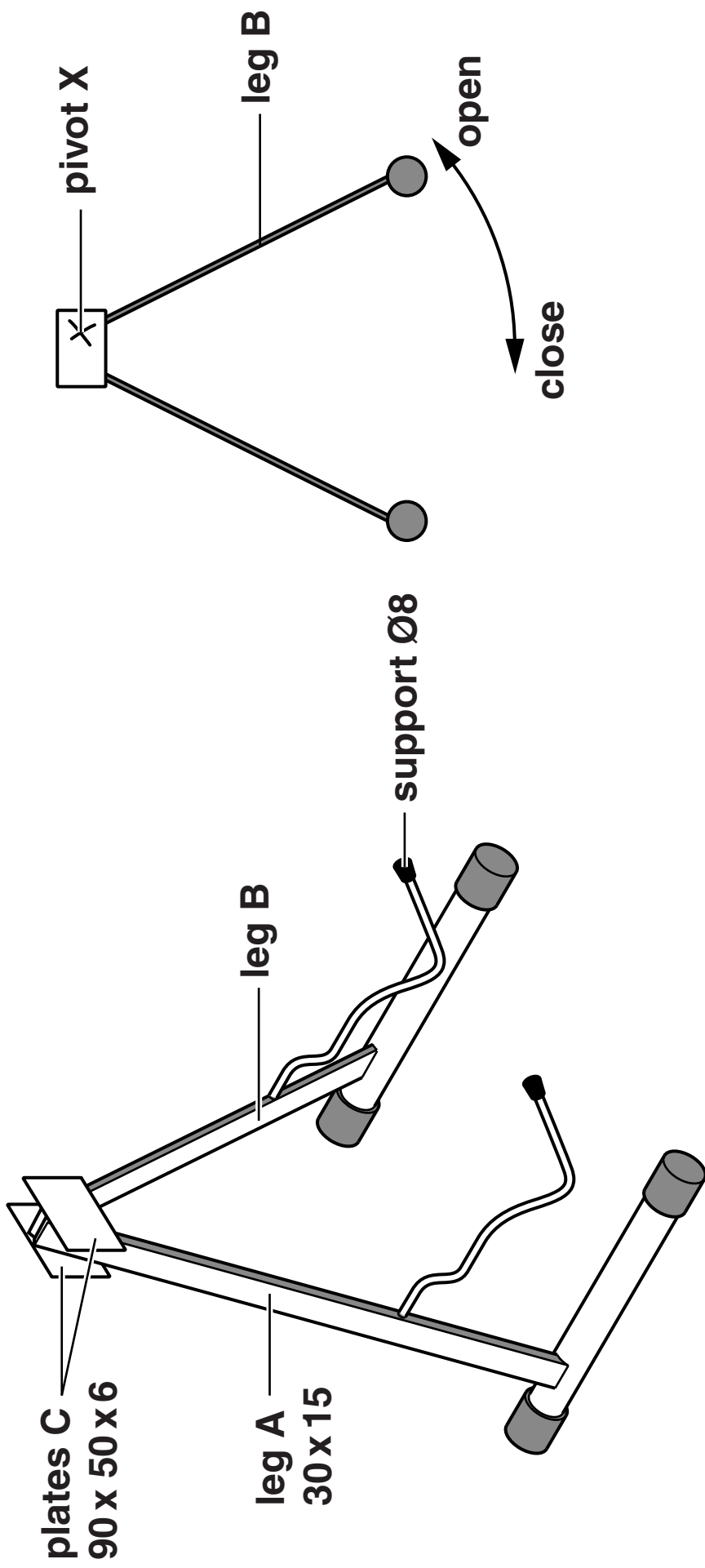


Fig. 2

(c) Describe FOUR main stages involved when brazing one of the supports to a leg.

1 _____

2 _____

3 _____

4 _____ **[4]**

(d) Use sketches and notes to show how leg B could be made to pivot at X and be tightened in the open position. Tightening must be carried out by hand, without the use of tools.

[5]

[Total:12]

- 3 Fig. 4 shows a computer table made from 25 mm thick manufactured board. The computer table is supplied as flat-pack for self-assembly.**

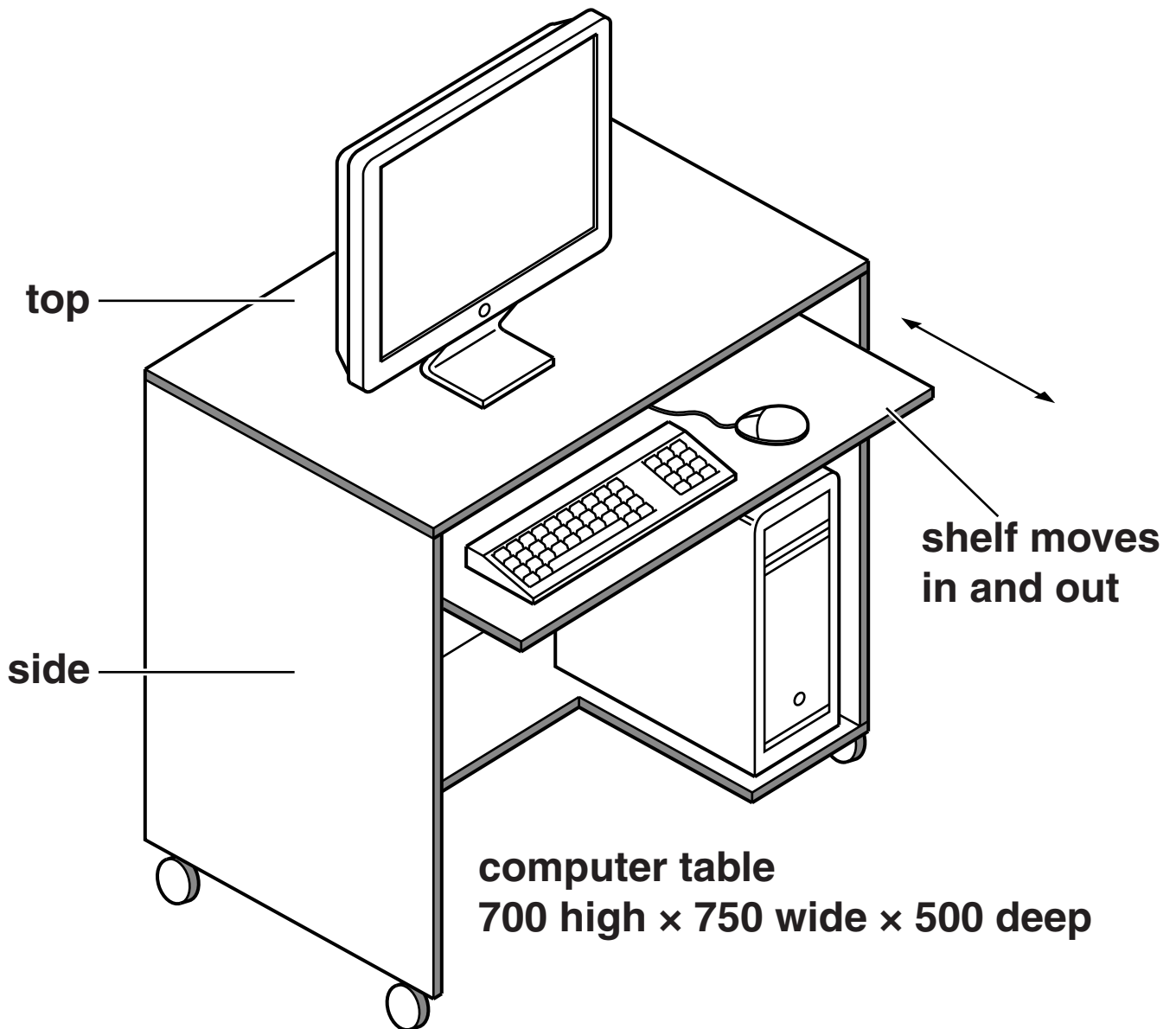


Fig. 4

- (a) Use sketches and notes to show how knock-down (KD) fittings could be used to join ONE side to the top of the computer table.**

[3]

(b) Use sketches and notes to show how the shelf, used to support the keyboard, could be made to slide in and out as shown in Fig. 4.

[3]

(c)* Explain why the computer table could be considered to be a product with a limited life.

[illegible]

[Total:12]

SECTION B

Answer ALL questions

- 4 Fig. 5 shows a box of giant dominoes used by children.
The box is made from 15 mm thick hardwood. The dominoes are made from 10 mm thick manufactured board.

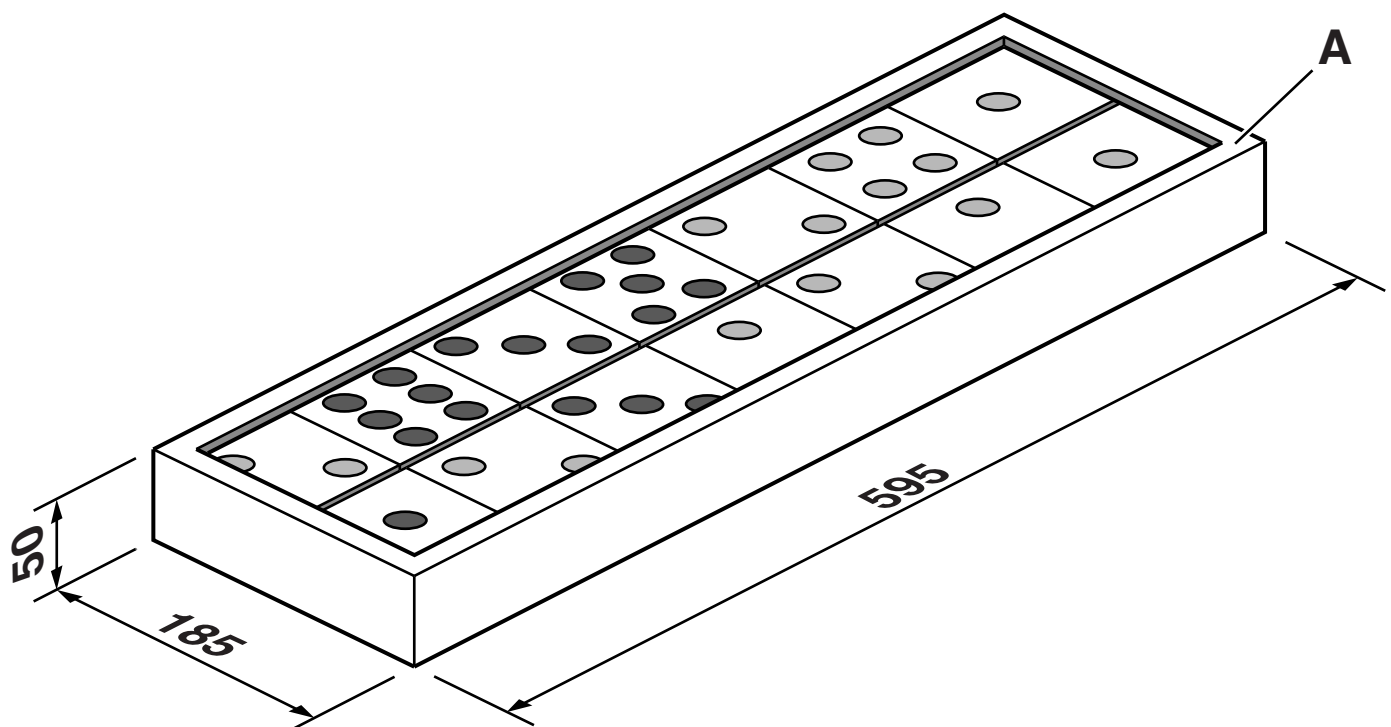


Fig. 5

- (a) Give TWO reasons why manufactured board has been used for the dominoes rather than hardwood.

1 _____

2 _____ [2]

- (b) Name and sketch a suitable joint, other than a butt joint, for corner A.
Do NOT include details of the base of the box.**

Name of joint _____

[3]

- (c) Fig. 6 shows details of a bench hook and a length of manufactured board from which the dominoes will be sawn. Each domino is 150 mm long.

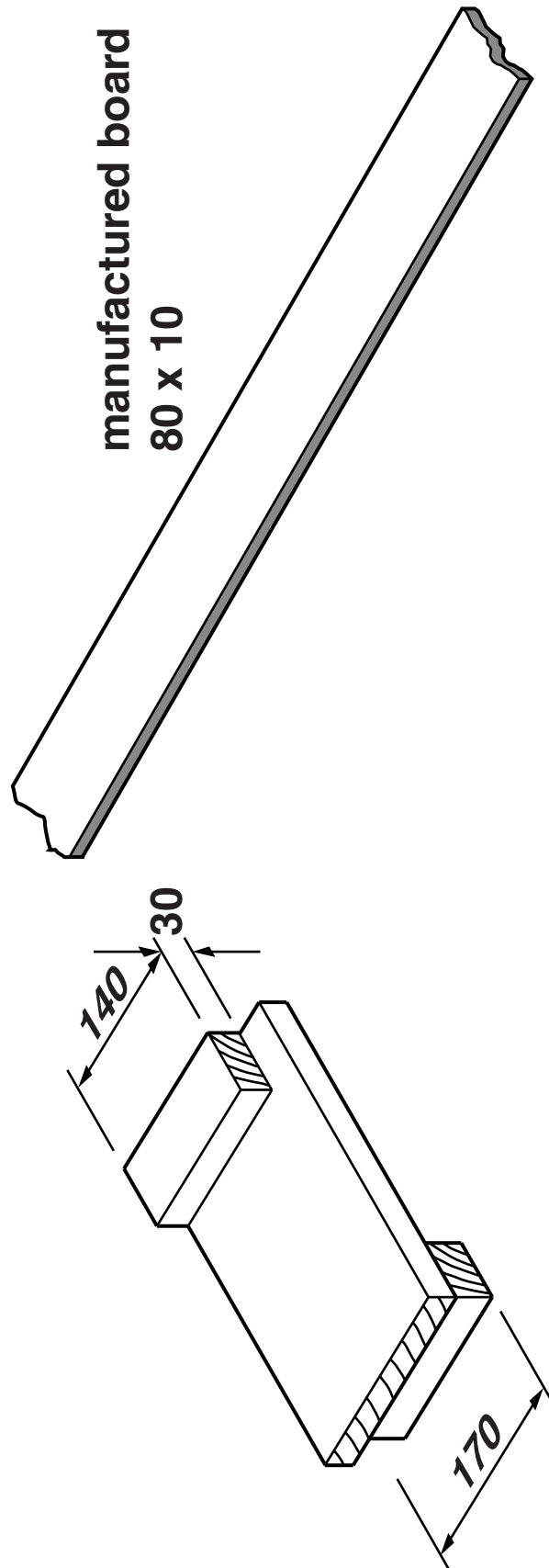


Fig. 6

Use sketches and notes to show how the bench hook could be modified into a sawing jig so that the dominoes can be sawn accurately to length.

(d) Fig. 7 shows one domino. Each set of numbers is represented by different coloured dots.

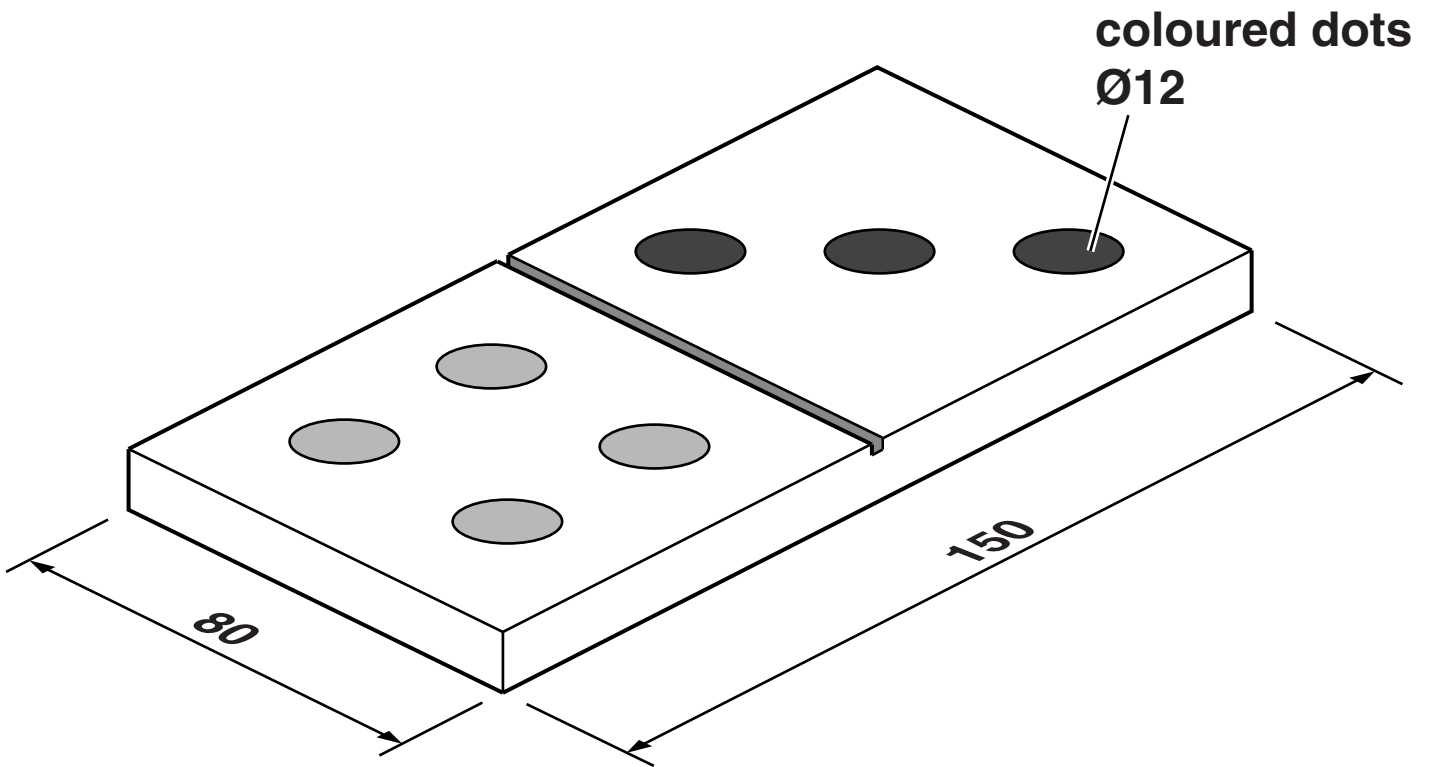


Fig. 7

Explain how CAM could be used to produce the coloured dots on a set of dominoes.

[4]

[Total:12]

- 5 Fig. 8 shows a prototype desk tidy. The trays used in the desk tidy are lids from containers that would have been thrown away. The trays are made from rigid polystyrene. Trays A and B can rotate about the column. Tray C is fixed to the column.

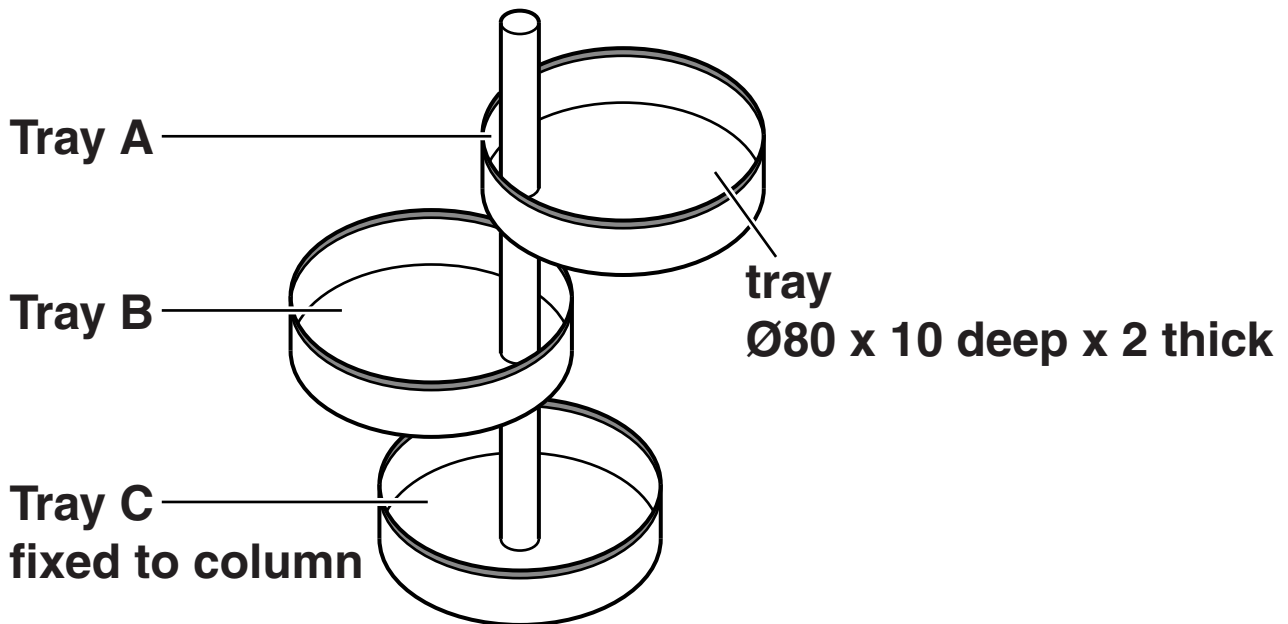


Fig. 8

- (a) Give ONE benefit of reusing products that would otherwise be thrown away.

[1]

- (b) Give ONE example during the manufacture of the desk tidy where 'dimensional accuracy' would need to be considered.

[1]

- (c) The column, to which the trays are attached and rotate, could be made from wood, metal or plastic. Use sketches and notes to show how Trays A and B could be supported on the column and allowed to rotate.**

[4]

(d)* If the desk tidies were to be manufactured in quantity, the trays would be made by means of a moulding process.

Explain the benefits of modern moulding processes used to manufacture plastic products.

[illegible]

[6]

[Total:12]

[illegible]

[illegible]

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