

CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

GEOMETRICAL AND MECHANICAL DRAWING

7040/02

Paper 2

October/November 2003

2 hours 40 minutes

Additional Materials: A2 Drawing paper (1 sheet)
Standard drawing equipment

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name at the bottom right-hand corner of your drawing paper.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **both** questions.

Use both sides of the drawing paper for your answers.

The number of marks is given in brackets [] at the end of each question or part question.

The insert contains Fig. 2 for Section 2.

You should spend 10 minutes reading carefully the text of Section 2 before answering the questions.

Arcs of circles less than 5 mm radius may be drawn freehand.

All dimensions are in millimetres unless otherwise stated.

This document consists of 4 printed pages and an insert.



Section 1

Candidates are advised to spend not more than 20 minutes on this section.

- 1** Fig. 1 shows views of a fabricated bracket in third angle projection. The dimensioning of the views is incomplete and is only a guide to the general proportions of the bracket.

Sketch, freehand and in good proportion, a pictorial view of the bracket with the axis of the barrel in the vertical plane and point C in the foreground of the view.

The use of instruments, including any form of straight edge, when constructing the view or when lining-in will be heavily penalised.

Faint construction lines and points used when constructing the view should not be erased. [16]

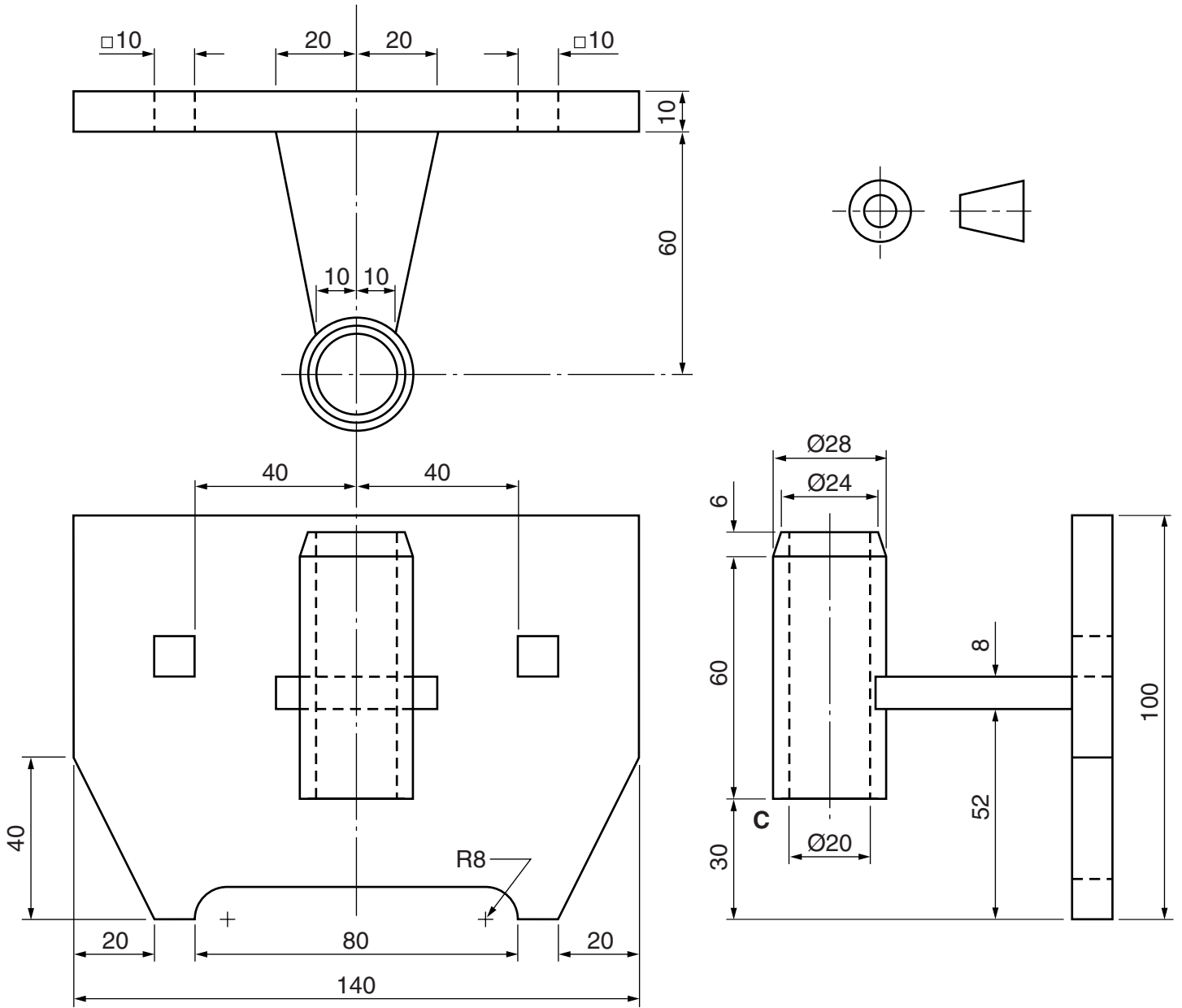


Fig. 1

Section 2

- 2 Fig. 2 on the insert shows details of the main components of a woodworker's clamp.

The components are assembled as follows.

The Head ① is fitted onto the right hand end of the Guide ④ until the 8 mm diameter hole of the Head and the 8 mm diameter hole, marked A, of the Guide are in alignment and secured using the M8 Bolt ⑩, Washer ⑪ and M8 Nut ⑫.

The Handle ⑥ is fitted into the 8.5 mm diameter hole of the Main Screw ⑤ and a Cap ⑦ threaded onto each end.

The Main Screw is threaded into the M12 square thread of the Head and screwed through the Head until the whole of the plain 10 mm diameter extends over the Guide. The Sliding Jaw ② is fitted onto the opposite end of the Guide with the 10 mm diameter blind hole facing the thread and moved along until the plain 10 mm diameter of the Main Screw is located in the blind hole of the Sliding Jaw. It is secured by the Grub Screw ⑬ whilst allowing free rotation of the Main Screw.

The Adjustable Jaw ③, with its flat face towards the Sliding Jaw, is fitted onto the Guide until the 8 mm diameter hole is in alignment with the third 8 mm diameter hole of the Guide. It is secured in position using the Retaining Pin ⑧.

So that the Adjustable Jaw does not become detached in use the Stop ⑨ is screwed into the M6 threaded hole in the front face of the Guide.

With the components assembled as indicated above and the flat faces of the Sliding Jaw and Adjustable Jaw 80 mm apart, draw, FULL SIZE, the following views in either first or third angle projection.

- (a) A sectional front elevation, the plane of the section and the direction of the required view being indicated by SS in details of the Head ①, Sliding Jaw ②, Adjustable Jaw ③ and Guide ④. [31]
- (b) An end view as seen when looking from the right hand side of the assembled clamp. [15]
- (c) A plan view. [28]

Suitable dimensions should be estimated where not provided.

Hidden detail is not required in any view.

Insert four dimensions on your drawing. These should indicate one of each of the following:

- a horizontal length;
- a vertical length;
- a diameter;
- and the size of a screw thread.

[4]

On the side of your drawing paper showing these views, draw a title block. Print into this block the title, scale used and indicate by BS308/PP7308 recommended symbol the method of projection you have used. [6]