

JUNIOR LYCEUM ANNUAL EXAMINATION 2005

Educational Assessment Unit – Education Division

| | | |
|-------------------------------------|-------------------------|---------------------|
| FORM 4 (2nd year) | TECHNICAL DESIGN | Time 2 hours |
|-------------------------------------|-------------------------|---------------------|

Instructions

- Write your name and class on all sheets.
- Attempt ALL questions.
- All answers are to be drawn accurately, with instruments, unless otherwise stated.
- All construction lines **MUST** be left on each solution to show the method employed.
- Drawing aids may be used.
- Colour / shading should be used where appropriate.

Information

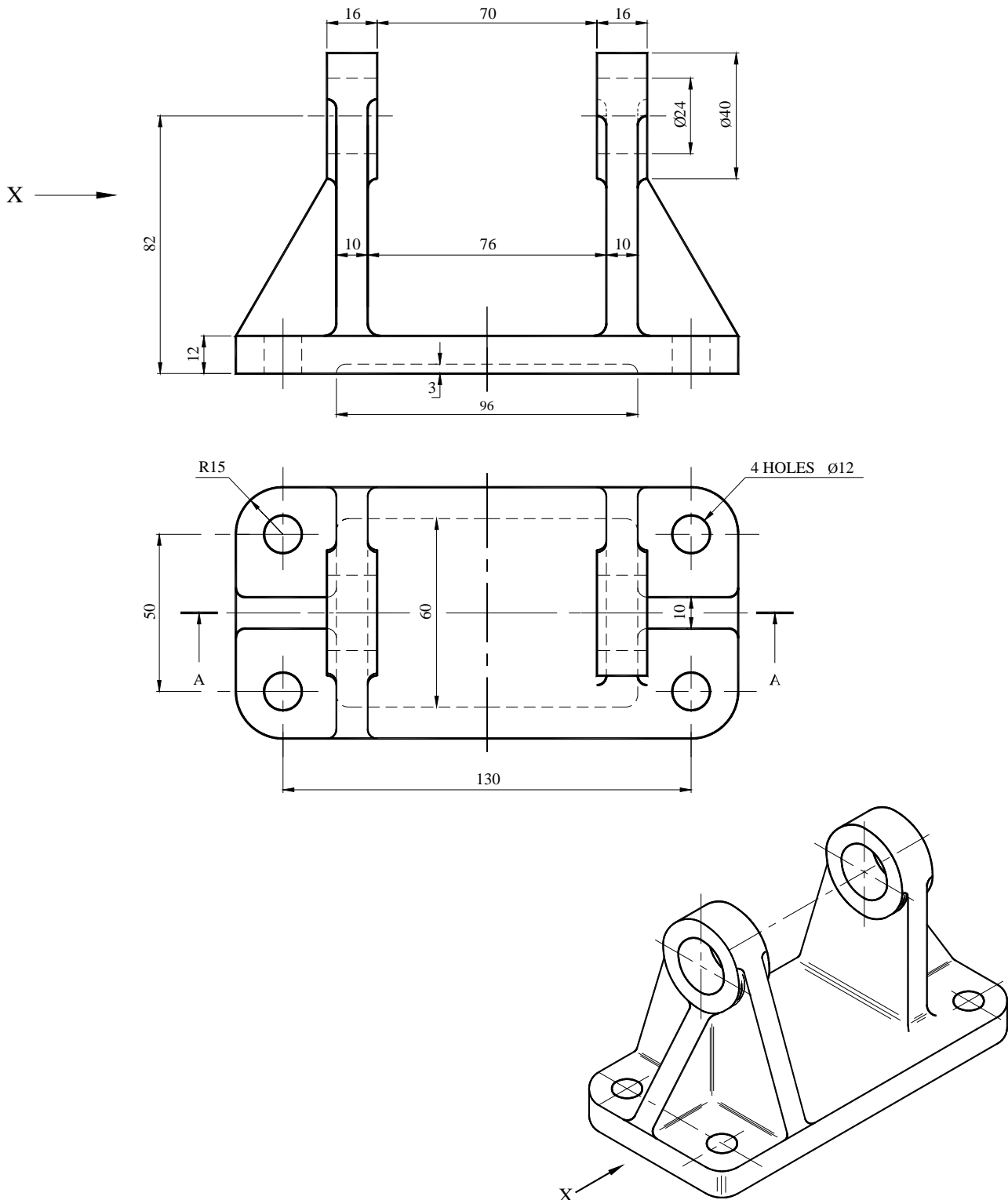
- All dimensions are in millimetres.
- Estimate any missing dimensions not given.
- Marks will be awarded for accuracy, clarity and appropriateness of construction.

NAME: _____ **CLASS:** _____

| Question | 1 | 2 | 3 | 4 | 5 |
|-----------|----------|----------|----------|----------|----------|
| Max. mark | 35 | 10 | 15 | 22 | 18 |
| Mark | | | | | |

1. The figure below shows a **SUPPORT BRACKET**

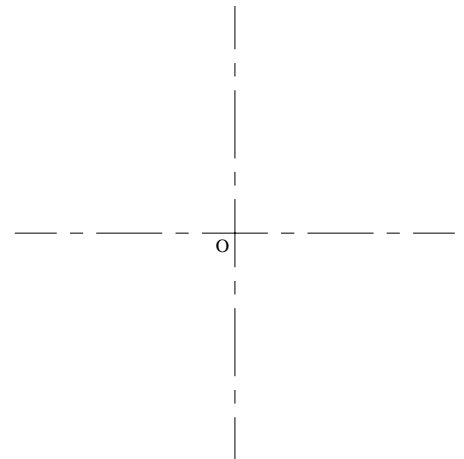
- (a) Draw, using first angle projection the following views
- (i) a sectional front elevation on plane A-A 18 marks
 - (ii) a complete end elevation as seen from direction of arrow X. 12 marks
- (b) Add the following to your drawing
- (i) the appropriate symbol to indicate the projection angle 5 marks
 - (ii) the scale
- (Total 35 marks)



2. Construct an ellipse having a major axis of 120mm and a minor axis of 80mm.

- Draw the ellipse using the concentric-circles method.
- Draw a tangent to the ellipse at a point on it 30mm above the major axis.

(10 marks)



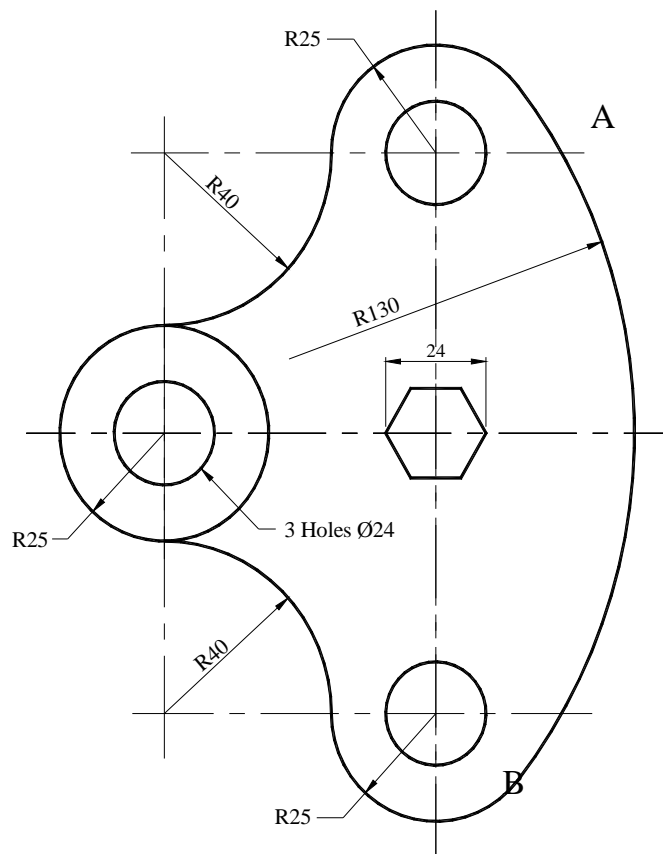
3. The figure below shows a drawing outline of a Locking plate.

- Copy the outline, full size, using geometrical methods to determine the centers of the arcs.
- Indicate the exact points of tangency by drawing short lines across the outline at the tangency points A and B.

The construction lines for the centres of the arcs and the points of tangency must be clearly shown.

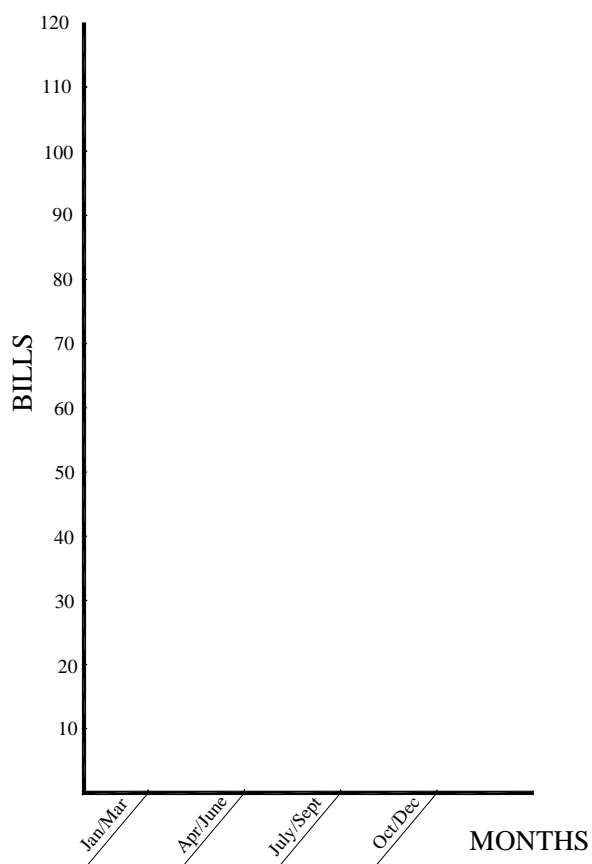
A uniform thickness and darkness of outline is required throughout.

(15 marks)



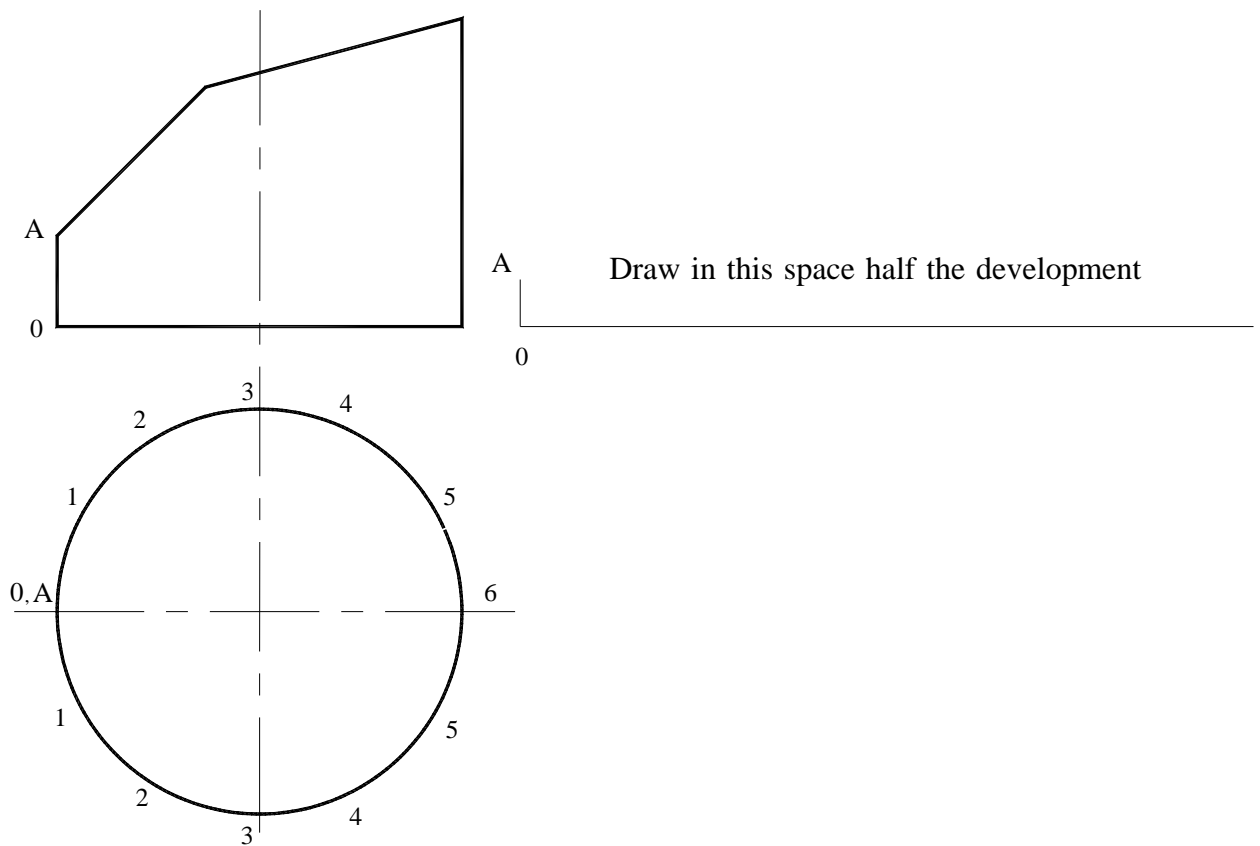
4. The table shows the quarterly bills for a family.
- (a) Draw line graphs to show a comparison throughout the year of the bills for **Electricity**, **Petrol** and **Telephone**.
- (b) Add suitable colour and notation to your graphs.
- (22 marks)

| BILL ITEM | JAN/MAR | APR/JUNE | JULY/SEPT | OCT-DEC |
|-------------|---------|----------|-----------|---------|
| ELECTRICITY | 100 | 85 | 80 | 85 |
| WATER | 40 | 50 | 100 | 60 |
| PETROL | 80 | 70 | 110 | 65 |
| GAS | 15 | 10 | 15 | 15 |
| TELEPHONE | 40 | 25 | 55 | 35 |

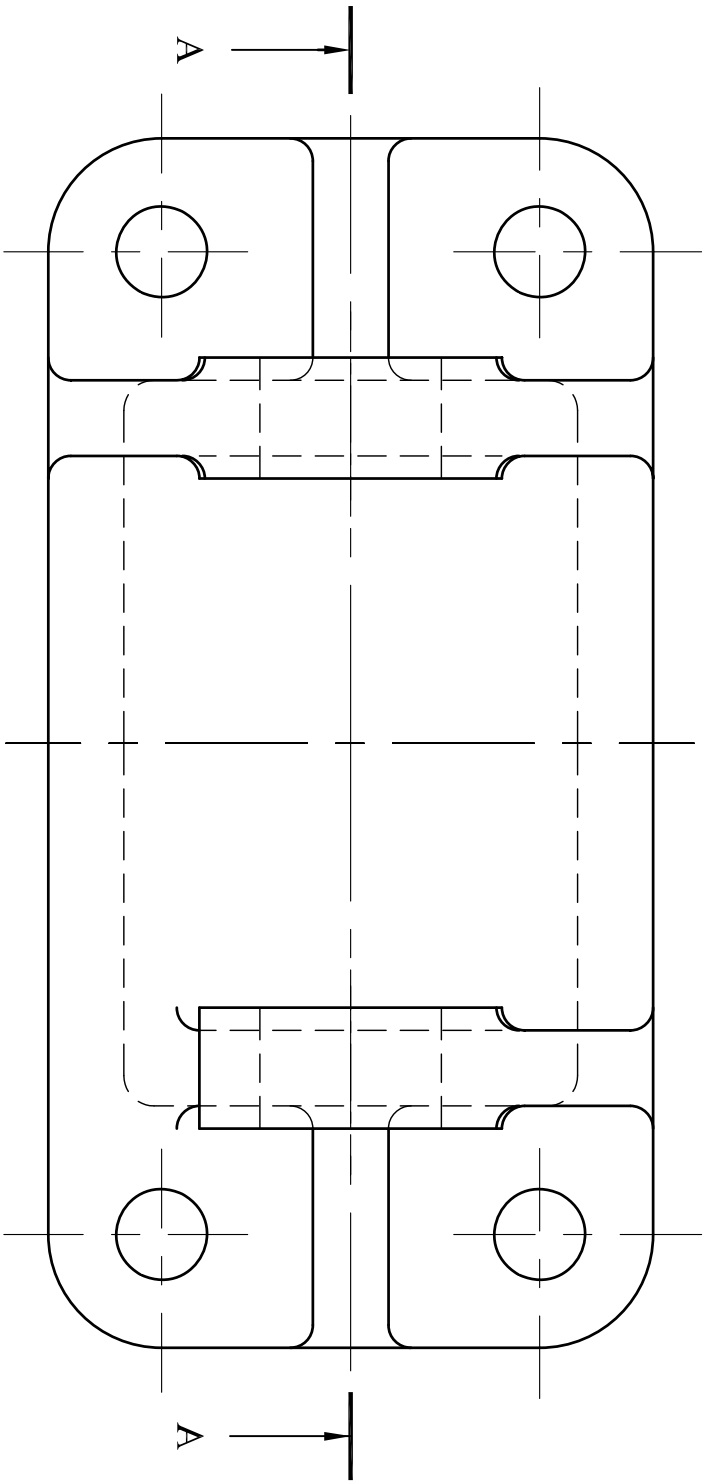


5. The figure below shows an elevation and plan details of a tubular component produced from thin sheet metal with the joint at **OA**. Construct in the space indicated a half development of this component with the joint at **OA**. All construction lines must be clearly shown.

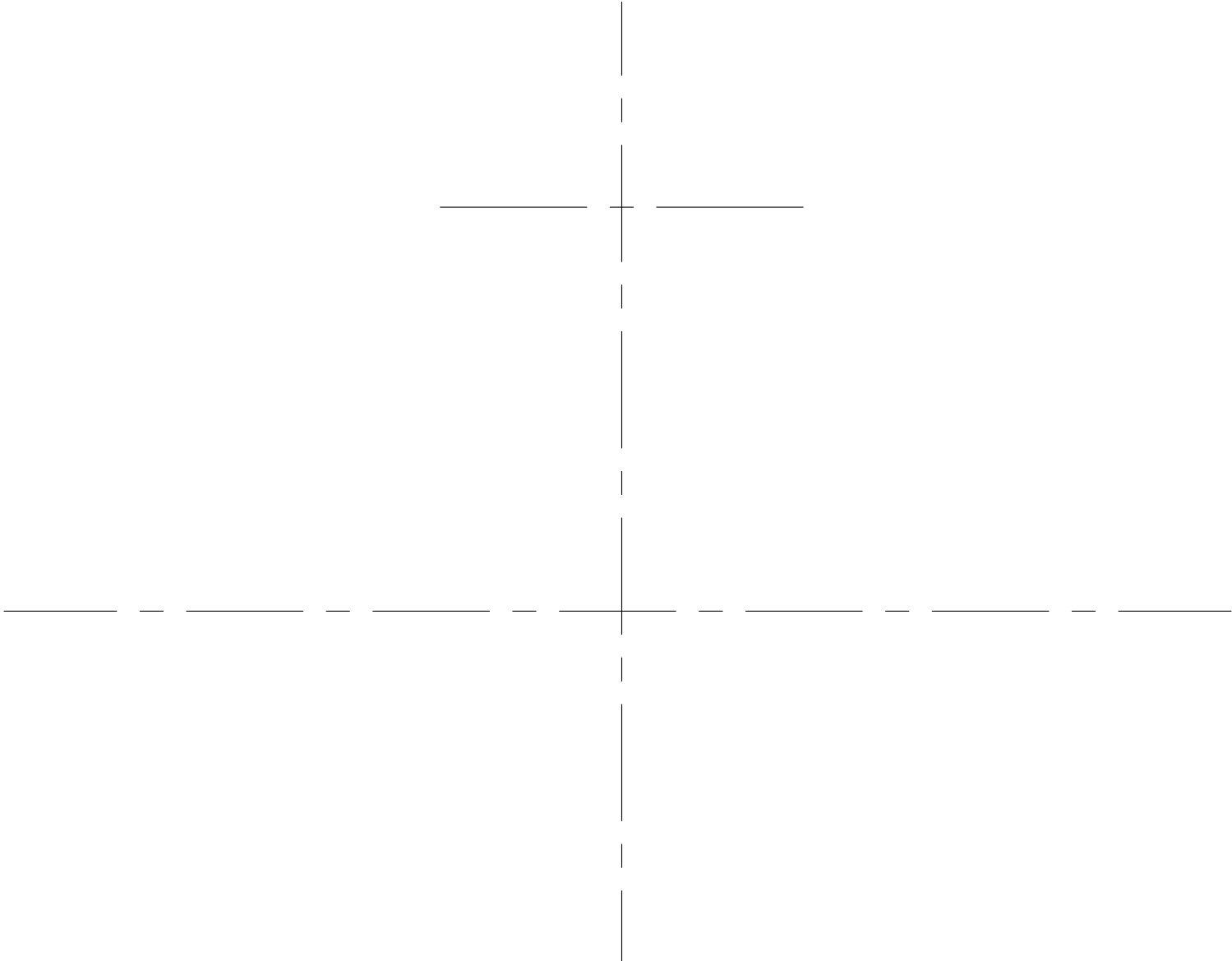
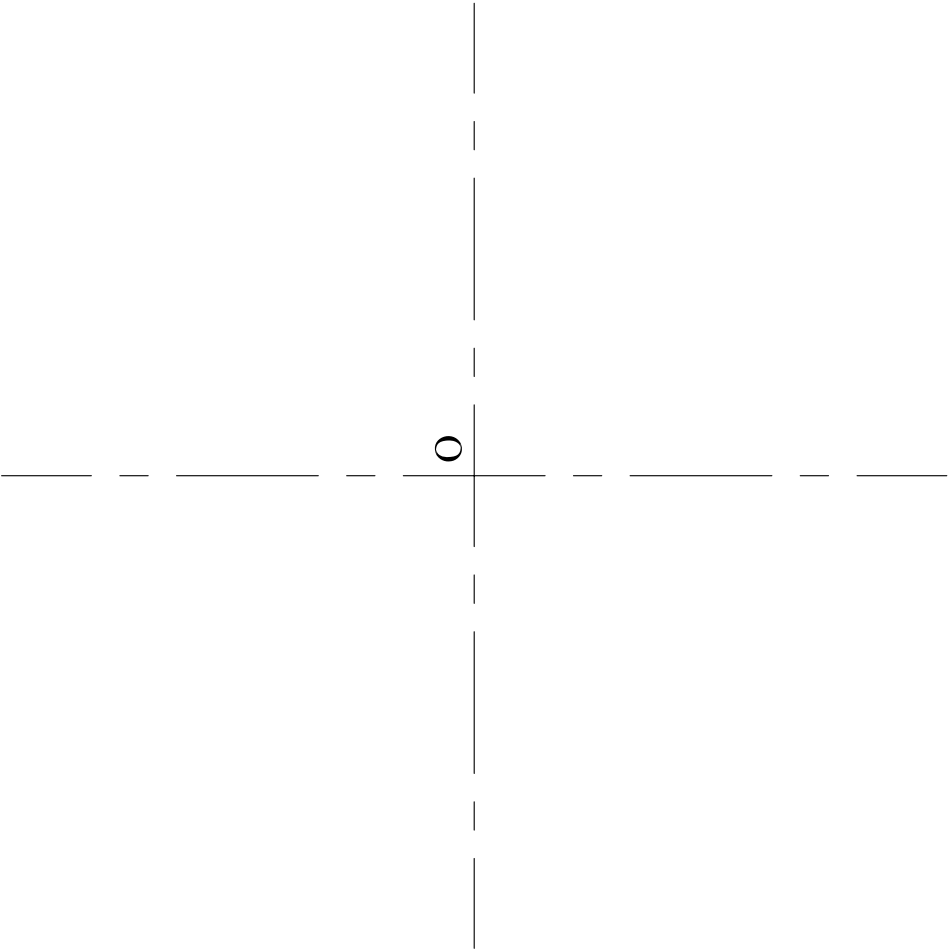
(18 marks)



QUESTION 1



ALL FILET RADII 3mm



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