Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination, 2009

Design & Communication Graphics
Higher Level
Section A (60 Marks)

Friday, 12 June
Afternoon, 2.00 - 5.00

This examination is divided into three sections:

SECTION A	(Core - Short Questions)
SECTION B	(Core - Long Questions)
SECTION C	(Applied Graphics - Long Questions)

SECTION A
- Four questions are presented
- Answer **any three** on the A3 sheet overleaf
- All questions in Section A carry **20 marks**

SECTION B
- Three questions are presented
- Answer **any two** on drawing paper
- All questions in Section B carry **45 marks**

SECTION C
- Five questions are presented
- Answer **any two** (i.e. the options you have studied) on drawing paper
- All questions in Section C carry **45 marks**

General Instructions:
- *Construction lines must be shown on all solutions*
- *Write the question number distinctly on the answer paper in Sections B and C*
- *Work on one side of the drawing paper only*
- *All dimensions are given in metres or millimetres*
- *Write your Examination number in the box below and on all other sheets used*

Examination Number:

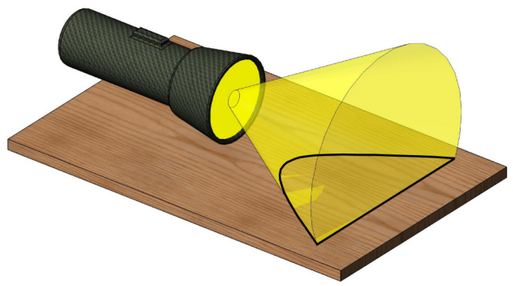
SECTION A - Core - Answer Any Three of the questions on this A3 sheet

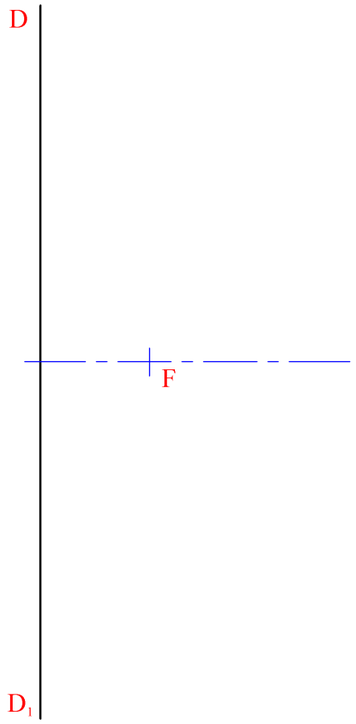
A-1. The 3D graphic below shows a beam of light shining across a table top and generating a hyperbolic curve.

The drawing on the right shows the axis, directrix and focus of such a hyperbola. The eccentricity for the curve is 1.2.

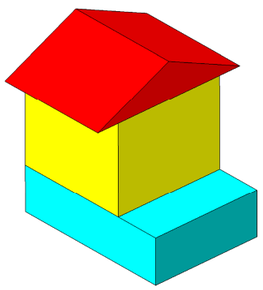
(a) Locate the vertex and draw a portion of the curve.

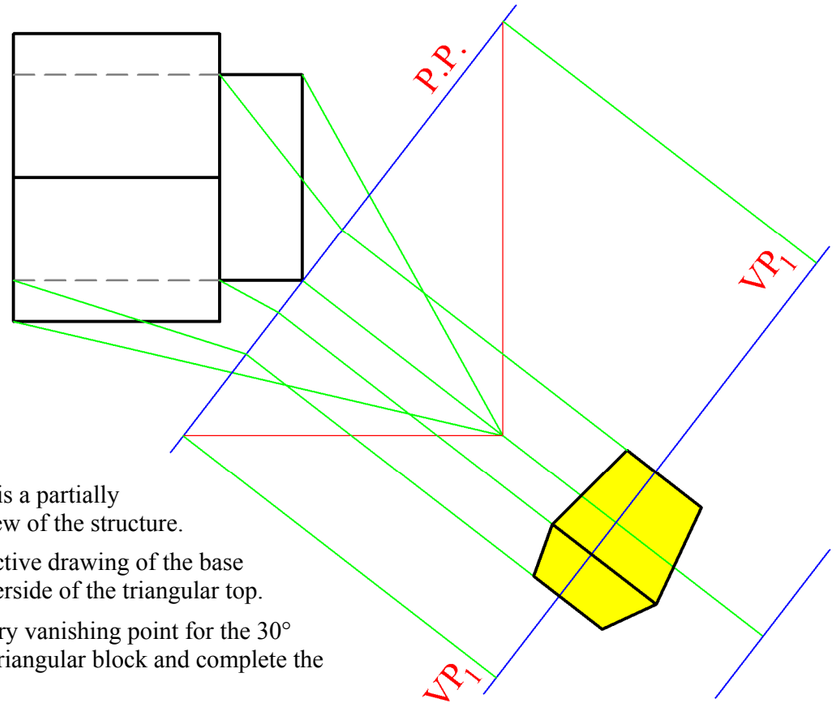
(b) Determine the centre of curvature for a point on the curve which is located vertically above the focus.





A-2. The 3D graphic below shows an arrangement of playing blocks.





The drawing on the right is a partially completed perspective view of the structure.

(a) Complete the perspective drawing of the base block and of the underside of the triangular top.

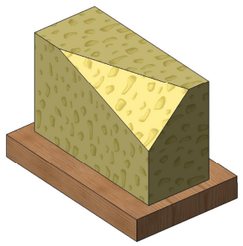
(b) Determine an auxiliary vanishing point for the 30° sloping faces of the triangular block and complete the drawing.

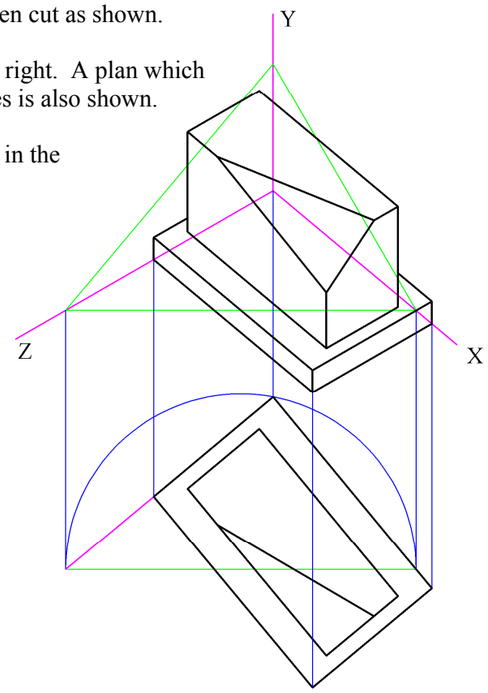
A-3. A block of cheese standing on a cheeseboard is shown in the 3D graphic below. The cheese has been cut as shown.

An axonometric view is shown on the right. A plan which has been positioned relative to the axes is also shown.

(a) Draw the elevation of the objects in the correct position on the XY plane.

(b) Determine the true shape of the triangular cut surface.

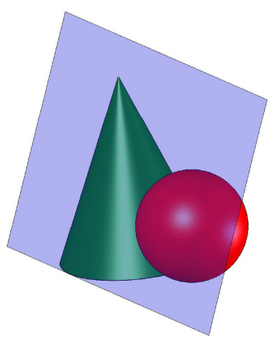


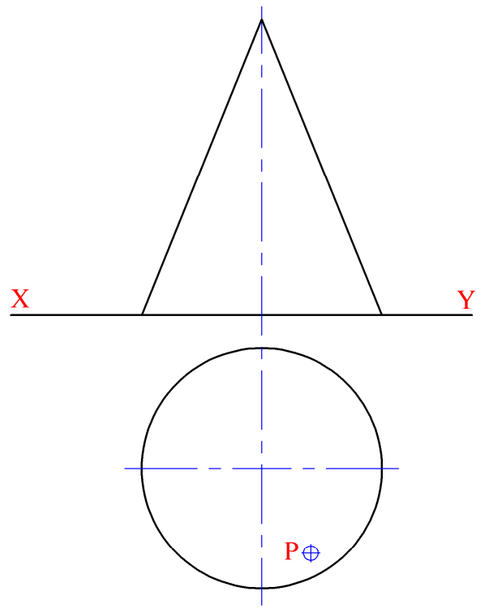


A-4. The drawing on the right shows the plan and elevation of a right cone. A 3D graphic is also given below. A point P on the curved surface is shown in the plan.

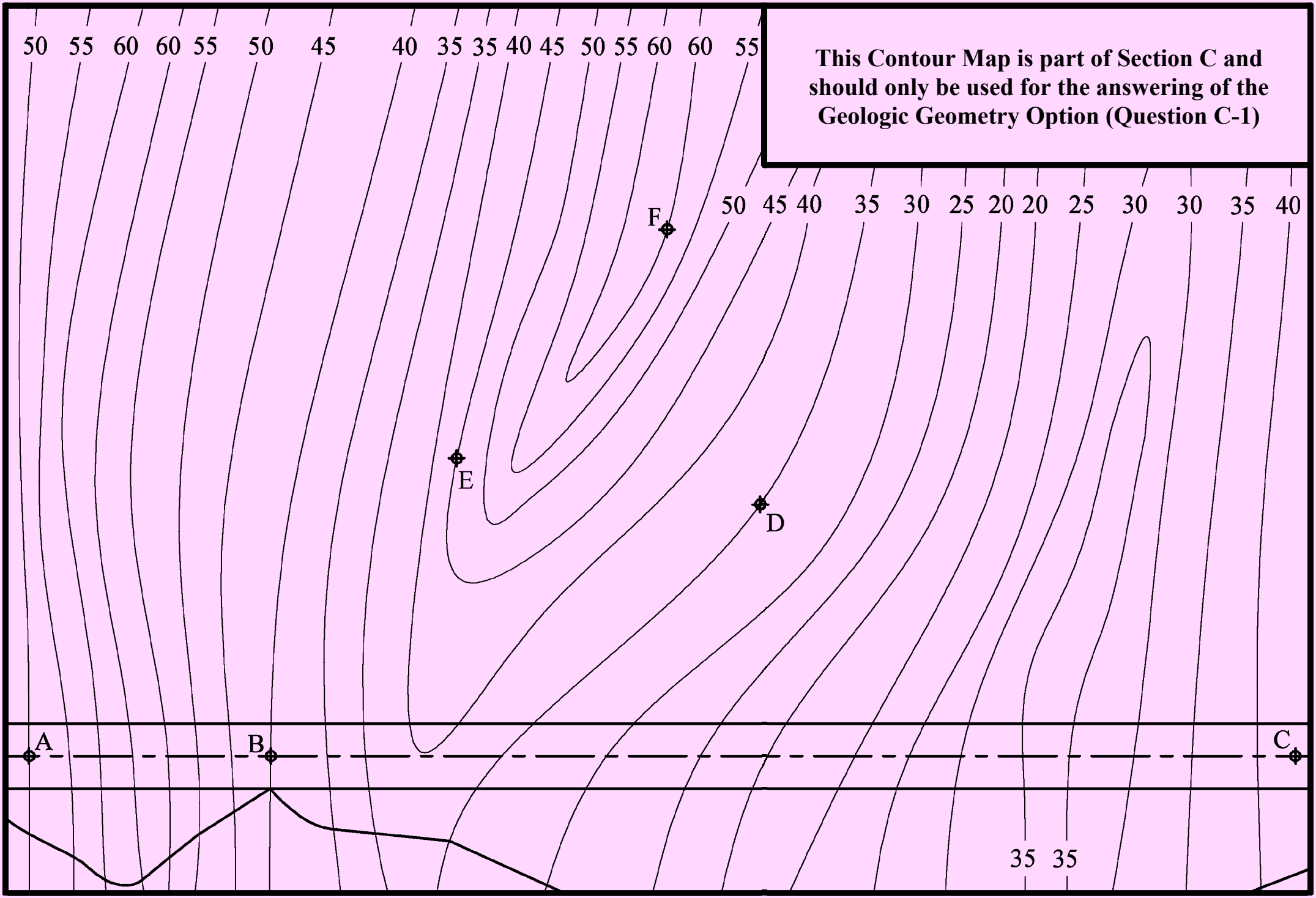
(a) Locate point P in elevation and draw the projections of a sphere which rests on the horizontal plane and which touches the cone at point P.

(b) Determine the traces of a plane which is tangential to the cone and the sphere as shown in the 3D graphic.





This examination paper must be returned at the end of the Examination – You must include your Examination Number on the front cover


This Contour Map is part of Section C and should only be used for the answering of the Geologic Geometry Option (Question C-1)
50 55 60 60 55 50 45 40 35 35 40 45 50 55 60 60 55
50 45 40 35 30 25 20 20 25 30 30 35 40
35 35
F
E
D
A
B
C