



Leaving Certificate Examination, 2013

Design & Communication Graphics
Higher Level

Section A (60 marks)

Wednesday, 19 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** each.

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

- 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** each.

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:

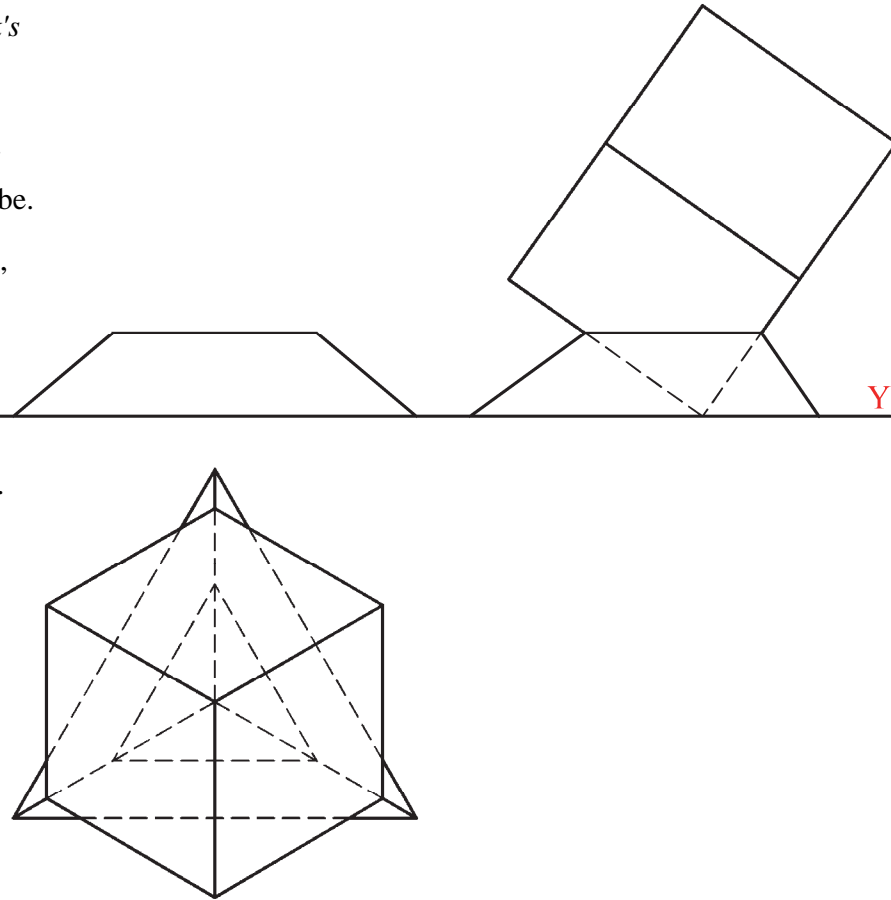
SECTION A - Core - Answer any three of the questions on this A3 sheet

A-1. The 3D graphic below shows a *Rubik's Cube* and a display stand.

The drawing on the right shows the incomplete projections of the objects.

- (a) Complete the elevation of the cube.
 (b) It is planned to package the cube, without the stand, in a plastic sphere.

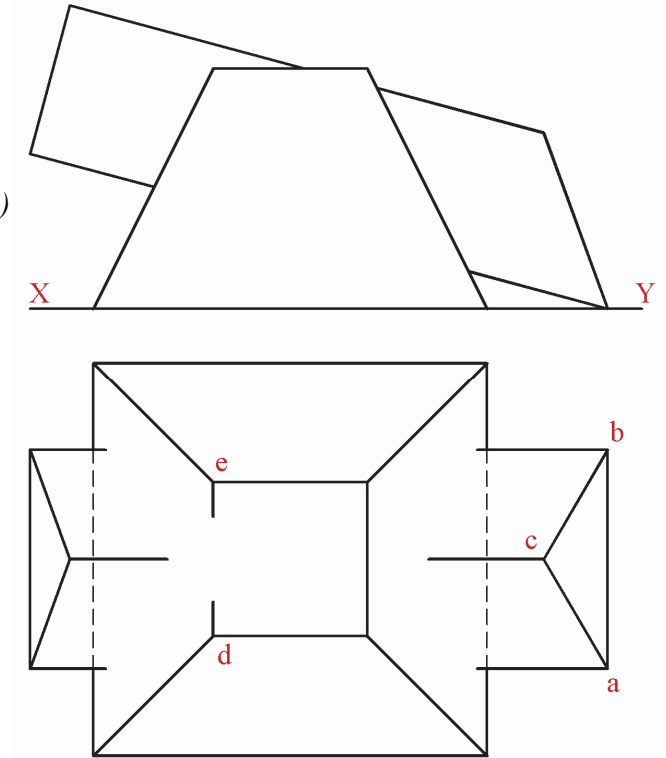
Determine the diameter of the smallest possible sphere that will contain the cube and draw that sphere in the end view.



A-3. The image below shows a sign outside the offices of a company called 'Key Technologies'. In the sign, a truncated copper pyramid is intersected by a triangular steel prism.

The drawing on the right below shows the elevation and incomplete plan of the solids which penetrate each other.

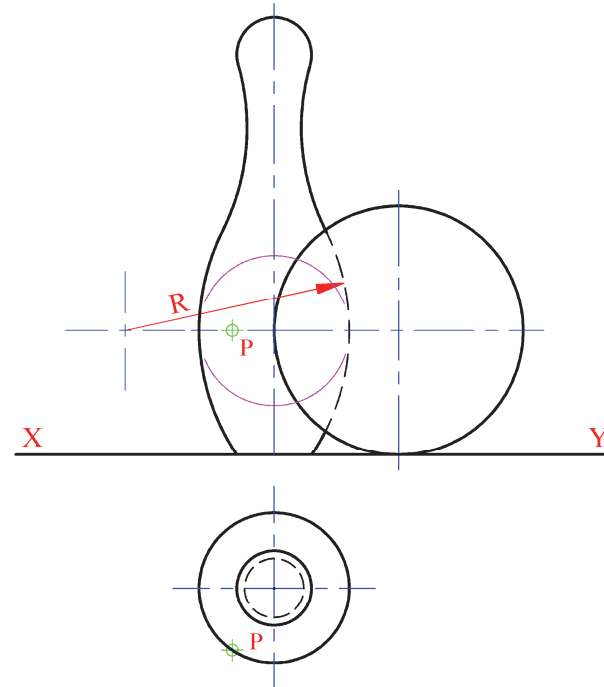
- (a) Complete the plan, showing all lines of interpenetration. Use a **section plane** to find the "crossover points" on edge 'de'. (The image below shows a keyhole logo, which should be omitted on your drawing.)
 (b) Determine the true shape of the triangle abc.



A-2. The graphic below shows a bowling ball and pins.

The drawing on the right shows the elevation and incomplete plan of one of the pins and the bowling ball in contact with each other.

- (a) Complete the plan of the solids in contact.
 (b) Draw the **plan** of a right cylinder which stands upright on the horizontal plane. The top of the cylinder touches the pin at the point **P** and also touches the ball.



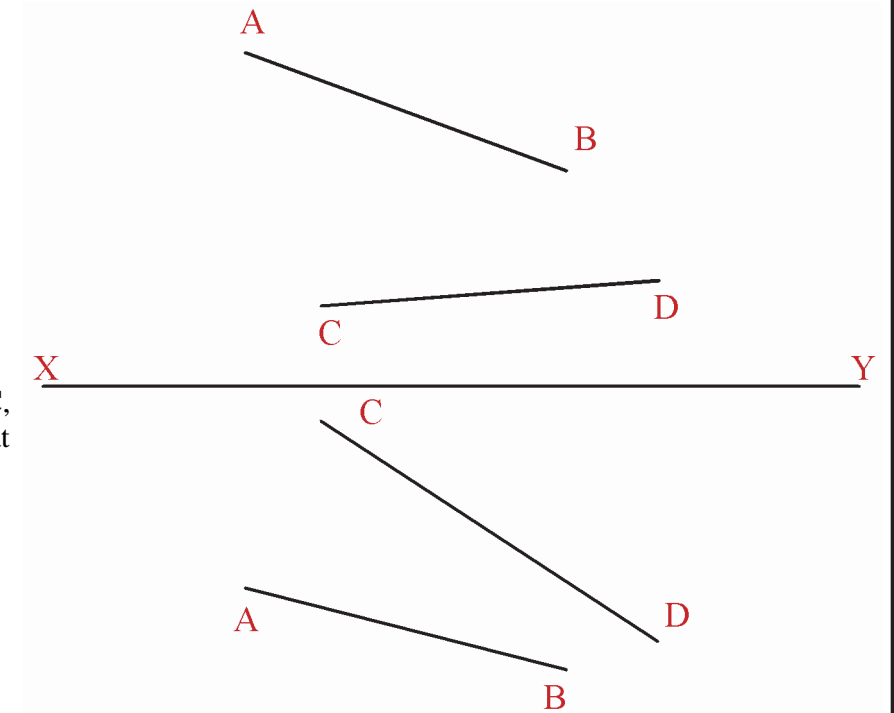
A-4. Lasers are often used in *Crime Scene Investigation* to determine the trajectory (flight path) of bullets. In the drawing on the right, two bullet paths are represented by the lines **AB** and **CD**.

- (a) Using geometric constructions, determine if the bullets were fired from the same location, by establishing if the lines are:

- Skew lines**
 or
 Intersecting lines

(Indicate using a tick '✓').

- (b) Draw a line, joining points **A** and **C**, and determine the true length of that line.



This Contour Map is part of Section C and should only be used for the answering of the Geologic Geometry Option (Question C-1).

(Scale 1:1000)

