AN ROINN OIDEACHAIS
(Department of Education)

INTERMEDIATE CERTIFICATE EXAMINATION, 1961.

ELEMENTARY MATHEMATICS (Geometry). FOR GIRLS ONLY.

FRIDAY, 9th JUNE.—MORNING, 10 TO 12.

All questions to be answered.

All questions carry equal marks.

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1. If one side of a triangle is greater than another, prove that the angle opposite the greater side is greater than the angle opposite the less.

2. Using ruler and compass only, construct

   (*a*) an angle of 60°,

   (*b*) an angle of 45°,

   (*c*) an equilateral triangle of vertical height 2″.

[No proof required but construction lines should be clearly shown.]

3. If a parallelogram and a triangle are on the same base and between the same parallels, prove that the area of the parallelogram is double that of the triangle.

4. Show with proof how to circumscribe a circle about a given triangle.

5. Prove that angles in the same segment of a circle are equal.

ABC is a triangle inscribed in a circle and AB=AC. A point P is taken on BC. If AP produced meets the circle at D, prove that AD bisects the angle BDC.

6. Show with proof how to draw a tangent to a circle from a given external point.

Two straight lines OX, OY make an angle of 60° with each other. Show how to describe a circle of radius one inch to touch OX and OY; explain your method; no proof required.