AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1955.

ELEMENTARY MATHEMATICS (Geometry).

FOR GIRLS ONLY.

FRIDAY, 10th JUNE.—MORNING, 10 TO 12.

All questions carry equal marks.

All questions to be answered.

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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 a ruler and compass only, construct

(*a*) an angle of 60°;

(*b*) an angle of 45°;

(*c*) a triangle ABC such that BC=4″, the angle ABC=60° and the angle ACB=45°.

3. Prove that the angle at the centre of a circle is double the angle at the circumference standing on the same arc, and hence, prove that the angles in the same segment of a circle are equal.

4. Show, with proof, how to draw a tangent to a circle from a point outside the circle.
TA and TB are tangents to a circle. Prove TA=TB.

5. Construct the locus of a point which moves so that it is always equidistant from two fixed points. Give proof.
Show, with proof, how to circumscribe a circle about a given triangle.

6. Prove that in a right-angled triangle the square on the hypotenuse is equal to the sum of the squares on the other two sides.