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(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1958.

ELEMENTARY MATHEMATICS (Geometry).
FOR GIRLS ONLY.

THURSDAY, 12th JUNE.—MORNING, 10 TO 12.

All questions to be answered.

All questions carry equal marks.

1. Using ruler and compass only, construct the following angles :—
 90° , 60° , 30° , 75° . All construction lines must be shown clearly.

2. Prove that the opposite sides of a parallelogram are equal and that a diagonal bisects the parallelogram.

A parallelogram ABCD and a triangle DEC are on the same base, DC, and between the same parallels; prove that the area of the triangle is half the area of the parallelogram.

3. Prove that the three angles of any triangle are together equal to two right angles.

ABC is an isosceles triangle in which $AB=AC$. Find, in degrees, the size of the angle BAC when (i) the angle ABC is twice the angle BAC, (ii) the angle BAC is four times the angle ABC.

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

5. From a point P outside a circle, the centre of which is O, show, with proof, how to draw two tangents PA and PB to the circle. Prove that $PA=PB$ and that OP bisects the chord AB.

6. Show, with proof, how to inscribe a circle in a given triangle.

In a triangle ABC, the angle ABC is a right angle. The inscribed circle touches the sides AB and CB at E and F, respectively, and O, the centre of the circle, is joined to E and F. Prove that OEBF is a square.