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(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1951.

ELEMENTARY MATHEMATICS (Geometry).
FOR GIRLS ONLY.

WEDNESDAY, 6th JUNE.—MORNING, 10 TO 12.

Six questions may be answered.

All questions carry equal marks.

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1. What are parallel straight lines ?

Prove that the opposite sides and angles of a parallelogram are equal to one another.

2. Using ruler and compass only, construct a triangle ABC such that AB=2″, AC=2½″ and the angle ABC=90°.

Find the area of the triangle.

Or,

2. ABCD is a parallelogram in which the diagonals AC and BD intersect at O. If AC=3″ and BD=4″ what are the lengths of AO and BO ?

Construct a parallelogram such that one side is 3″ in length and the diagonals are 3″ and 4″ in length, respectively.

3. Prove that the angle at the centre of a circle is double the angle at the circumference standing on the same arc.

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

4. Show with proof how to draw a triangle equal in area to a given quadrilateral.

Or,

4. If a straight line passes through the centre of a circle and cuts a chord at right angles, prove that it bisects that chord.

Chords are drawn parallel to one another in a fixed circle. What is the locus of their middle points ?

5. Prove that the straight lines which bisect the sides of a triangle at right angles are concurrent.

State briefly, without proof, how you would circumscribe a circle about a given triangle.

6. Two circles touch at A externally. PQ is a chord of one circle. PA and QA, produced, cut the other circle again at R and S, respectively. Prove that SR is parallel to PQ.

[Hint : Draw the common tangent that passes through A.]