

AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1949.

ELEMENTARY MATHEMATICS (Geometry). FOR GIRLS ONLY.

THURSDAY, 9th JUNE.—MORNING, 10 TO 12.

Six questions may be answered.

All questions carry equal marks.

1. What is an isosceles triangle? Prove that the angles at the base of an isosceles triangle are equal. State the converse theorem.

2. Using ruler and compass only, show how to draw a straight line perpendicular to a given straight line from a given point outside it. Give proof.

Or,

2. Construct a triangle whose sides are 4.5", 3.2" and 2.1" in length respectively.

Circumscribe a circle about the triangle and measure its radius.

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

3. If the square on one side of a triangle is equal to the sum of the squares on the other two sides, prove that the angle between these two sides is a right angle.

4. If a diameter of a circle is at right angles to a chord which does not pass through the centre, prove (a) that it bisects the chord, (b) that it bisects the arcs cut off by the chord.

P.T.O.

5. Two circles, centres A and B, touch externally at S. P is a point on the circumference of the circle whose centre is A. The straight line PS is produced to meet the circumference of the other circle again in Q. Prove that AP is parallel to QB.

Or,

5. Show, with proof, how to draw a tangent to a circle from a given point outside the circle.

P is a point 6.5 inches from the centre of a circle whose radius is 2.5 inches. Calculate the length of the tangent from P to the circle.

6. AB is a given straight line and P and Q are two given points not on AB. Find a point on AB equidistant from P and Q.

Find also two points each of which is equidistant from P and Q and one inch from AB.

7. ABCD is a quadrilateral in which AB is parallel to DC. Show, with proof, how to find a point X in AB produced so that the triangle ACX is equal in area to the quadrilateral ABCD.