

# AN ROINN OIDEACHAIS.

(Department of Education.)

## BRAINNSE AN MHEADHON-OIDEACHAIS

(Secondary Education Branch).

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INTERMEDIATE CERTIFICATE EXAMINATION, 1940.

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### ELEMENTARY MATHEMATICS (Geometry). FOR GIRLS ONLY.

FRIDAY, 14th JUNE.—MORNING, 10 A.M. to 11.30 A.M.

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*Six* questions may be answered.

All questions carry equal marks.

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1. Prove that any two sides of a triangle are together greater than the third.

2. Prove that the angle at the centre of a circle is double the angle at the circumference standing on the same arc. [One case will be sufficient.]

3. A and B are two objects 275 yards apart, B being due East of A. A third object C is due North of A and is 400 yards from B. Find, by means of a scale drawing and measurement, the distance between C and A. Verify your answer by calculation.

4. AB and CD are two chords of a circle and AB is nearer to the centre than CD. Prove that AB is greater than CD.

5. Construct a parallelogram of area 8 sq. inches such that one side may be equal to 4 inches and another equal to  $2\frac{1}{2}$  inches. Measure its diagonals. [No proof required.]

6. What is a locus?

Draw two intersecting straight lines. Then construct the complete locus of a point which moves so as to be always equally distant from the two intersecting lines. State the result in words. [No proof required.]

7. Show how to inscribe in a given circle a triangle equiangular to a given triangle. Give proof.

8. PQR is a triangle in which  $QR^2 = PQ^2 + PR^2$ . Prove that the triangle is right-angled at P.

9. Without making use of your protractor, construct *any* triangle with angles of  $45^\circ$ ,  $60^\circ$ ,  $75^\circ$  respectively. Then construct a triangle equiangular to the one you have drawn and so that its shortest side may be 2 inches long. [No proof required.]