# JOURNAL OF EDUCATION.

#### 9 TO 10 A. M., THUBSDAY, 7TH JULY.

## GEOMETRY, D.

#### (Only five questions to be answered).

A B is given at right angles to the greater line A C. From A C it is required to cut off A D equal to A B.

2.

If a triangle is equilateral, it is also equiangular. The exterior angle of a triangle is greater than either of the interior and opposite 3. angles.

4. If a triangle and rectangle be on the same base and between the same parallels, show the relation between their areas.

5. Every right-angied triangle is divided into two isosceles triangles by the straight line drawn from the right angles to the middle point of the hypotenuse. 6. If the square on one side of a triangle is equal to the sum of the squares on the

other sides, it subtends a right angle.

7. Enunciate propositions 24 and 29 of Euclid I. Indicate three propositions which demonstrate the reasons for rules in arithmetic or practical work of any kind.

## 2 TO 3 P. M., THURSDAY, 7TH JULY.

## SCIENCE, D.

## (Only five questions to be answered).

1. Describe by the botanical term, by drawing or word description the leaf of the Aspen, of the Horsetail, of the Goldthread, of the Strawberry, of the Rose; the corolla of the Violet, of the Blueberry, of the Potato, of the Laurel, of the Brunella; the stamens of the Buttercup, of the Dandelion, of the St John's Wort, of the Lilac, of the Apple; the styles of the Apple, of the Plum, of the Dandelion ; the ovary of the Maple, the Strawberry, and the Willow Herb. (Ten fully correct or twenty half correct will be considered a full answer).

**.** A.

2 Give a description by drawings and otherwise of the principal parts of any flowering plant not figured in your text book. 3. In like manner describe any Moss, Lichen, Seaweed, Fern, or other.non-flowering

plant which you have studied.

4. Mention the plants which you know, belonging to the following families, stating the kind of flower or flower cluster and the month in which they flower: Pea family, Honeysuckle family, Heath family, Compositae, Mint family, Orchid family, and Lily

family. (Ten plants fully correct or twenty half correct will be considered a full answer.) 5. From what sources do plants derive their substance, and how? How does sunlight affect plants? What is chlorophyll and where is it found? Have you ever seen. through a compound microscope, the cells of plants? If so, tell how many things you have thus seen. (A half page of concise answering to any or all of these questions will count full value if the points are important and the composition is not too wordy—facts not words constituting the value )

6. Explain the action of an ordinary suction pump, or the cause of flame (say a candle flame), or, Write a note on winds and their causes.

7. Explain the cause of the rainbow, or of the thunderstorm, or the effects of evaporation.

#### 9 TO 10 A. M., FRIDAY, STH JULY.

### ARITHMETIC, D.

1. Simplify 
$$\frac{3.5 - 1.83}{9.7 - 6.4} \times \frac{1}{71} \div \frac{3.1 \times .101}{2.15}$$
.

2. Extract the cubic root of 16,777,216.

3. Multiply £245-138. 41d. by 58.

- 4.
- (a) When an ounce of gold is worth £4 17s. 6d., what is 4.05 lbs. worth ?
  (b) What is a kilogram of the same gold worth in dollars, given £1=\$4.863.

Find the principal sum on which the simple interest in 21 years at 61 % per annum is \$1,068.75.