# JOURNAL OF EDUCATION.

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

#### GEOMETRY. D.

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

(a) What is a rhombus? (b) Write out the general enunciation of Euclid I. 24. (c) Which of the axioms in your book according to your opinion might be placed among the postulates with the least objec ions, and why?

2. Let B C D be an angle. Bisect it by a straight line C K, and prove the correctness of your construction.

3 The sides of a parallelogram are 12 inches and 8 inches; and the perpendicular distance between the wo longest sides is 5 inches. What proposition of Euclid shows how you can find its area by the aid of Arithmetic? Find the area, and explain briefly

the reason of your method 4 B C D and F G K are two triangles which have their bases B D and F K equal, and the two angles at B and D equal respectively to those at F and K. Show

that the two angles at B and D equal respectively to those at F and K. Show that the triangles are equal in area. Are they equal in any other respects?
5. The triangle M N P has its base M P produced to Q The exterior angle N P Q is equal to a right angle Prove that the side N M must be greater than N P.
6. If in the above triangle N M is equal to the algebraic quantity a, and N P equal to b; what will the base M P be equal to algebraically according to the facts proven in

Euclid 1 47. 7. The straight line which joins the middle points of two sides of a triangle

### 2 TO 3 P M., THURSDAY, 8TH JULY.

### SCIENCE (BOTANY, PHYSICS, ETC.) D.

1. Describe by the botanical term, by drawing or any other way: (a) the root of the Parsnip, of Aralia, of Iris: (b) the leaf of Viola, of Acer, of Trifolium, of Cirsium, of Pinus; (c) the flower cluster of Ranunculus, of Epilobium, of Cornus, of Taraxacum, of Plantago, of Syringa, of Triticum ; (d) the Month of flowering of Fragaria, of Epigaea, of Solanum ; and (e) the fruit of Pyrus, of Gaultheria, of Fagus. (Any ten of these if correct to make a full answer.)

1.3

Q

Describe as fully as you can by drawing and otherwise, either a Fern, or a Moss, or a Mushr om, or a Lichen

a. Describe by drawing or otherwise the different parts of the following flowers, from memory (one-half of the number making a full question): The Butterenp, Strawberry, Apple, Dandelion, Blue Flag, Mayflower, Lady's Slipper. Maple, Violet, Lilac
 4. (a) Give either the botanical term for the different kinds of fruits or seed-vessels, working montioning the near of the plant of which is it that fruits or seed-vessels.

merely mentioning the name of the plant of which it is the fruit; or

(b) Give the names of twenty flowers which you have observed, stating the general color of the flower and the name of the month in which they were in bloom, distinguishing between the first, middle and latter portion of each month, when you can ; or

(c) Explain the causes of wind and rain ; or

(d) Show by diagram how any form of air or water pump works; or (r) Explain why the weather is not as warm on the 22nd of March as on the 22nd of September, when the sun is as far north at the one time as the other Explain the heat problem involved in the case.

(a) Show by drawing and otherwise the effect of a prism of glass on a thin ray of light falling upon it. Be careful to have the rays refracted in the proper direction ; or

(b) Describe some form of electric battery, naming its parts, and pointing out the various effects you know how to produce by means of your current; or

(c) Write a paragraph on some of the most interesting points in connection with the theory or properties of sound.

9 TO 10 A. M., FRIDAY, 9TH JULY.

## ARITHMETIC. D.

(All the work, except what is mental, should be plainly expressed on the paper. Answers without the work leading up to them will be assumed to be guesses, etc., and therefore of no value.)

1. (a) Simplify

 $.004 \div .0005$ 

 $2.4\dot{2}\dot{3} + 3.57\dot{6} + 2.0001\dot{9}11$ (b) Find the value of 3.16875 of £1.

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