

GEOMETRY.

9.00 TO 10.00 A. M., THURSDAY, 8TH JULY, 1897.

(Only five questions to be answered.)

1. (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 objections, and why?

In Euclid there is much confusion of definitions, axioms and postulates. If in the first place it required the genius of a Helmholtz to make clear the distinctions between them it is manifestly impossible for the ordinary academic student to understand them fully. Axioms may, however, be considered as relating to magnitudes; and postulates, to space; so that the 4th, 5th and 6th axioms might be classed as postulates.

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

Book I, 9.

3. The sides of a parallelogram are 12 inches and 8 inches; and the perpendicular distance between the two 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.

Book I, 36. The area of the parallelogram would be equal to that of the rectangle on the base 12, equal to 12×5 .

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 triangles are equal in area. Are they equal in any other respects?

Book I, 26.

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 M N must be greater than N P.

The angle N P Q is greater than the angle N M P (I, 16). But the angle N P Q = the angle N P M (I, 13). Therefore the angle N P M is greater than the angle N M P. Therefore N M is greater than N P (I, 19).

9. 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 I, 47.

Ans. $\sqrt{a^2 - b^2}$.

7. The straight line which joins the middle points of two sides of a triangle is parallel to the base, and equal to the half of it.

Let N M P be the triangle and A and B the middle points on the sides N M and N P.

Then the triangles A B M and A B P are each equal to the triangle A B N (I, 38) and therefore equal to each other. Therefore A B is parallel to M P (I, 39). Draw B C parallel to A M. Then A B can be shown equal to C P (I, 26) and equal to M C (I, 34).

GEOGRAPHY AND HISTORY.

2.00 TO 3.00 P. M., FRIDAY, 9TH JULY, 1897.

(Only five questions to be answered.)

1. Describe the Anglo-Saxon methods by which accused persons could prove their innocence.

2. Sketch the career of Henry V. or Richard III.

3. Write notes on Domesday Book, Constitutions of Clarendon, Magna Charta, Provisions of Oxford, Mise of Lewes, Battle of Bosworth Field.

4. Explain the terms: *Monarchical, responsible, representative, federal*, as applied to the *form of government* in the Dominion of Canada.

5. Name the counties of Nova Scotia and New Brunswick through which the Intercolonial Railway runs. Name and locate the chief cities of Ontario; or, write a note on the railways of Canada.

6. Give as full a description as you can of the *industries, exports and imports* of the British Isles.

7. Describe any *one* of the following: Spain, Greece, Holland, Russia, California or Cuba.

(Answers can be readily obtained from the text book).

N. B. Normal School Entrance Examinations.

With Notes and Explanations.

Class I. GEOGRAPHY. Time, 1 hr. 45 min.

1. Where are the following, and what interest, present or recent, is attached to each, viz.: Canea, Rossland, Rhodesia, Larissa, Delagoa Bay, The Transvaal, The North Frigid Zone.

2. Draw a memory map of any *one* of the following, viz.: (a) Australia, (b) the seat of the recent Turco-Grecian war, (c) the New England States, (d) Scotland. In any map drawn mark all important physical features and towns.

3. Name the five largest islands in the world, exclusive of Australia, in the order of their area. Give two important facts in the general geography of each.

4. Describe the canal systems of Canada, and show their commercial importance.

5. State the resemblances and differences between the Continents of Asia and Europe in respect to direction of mountain chains, plateaus, plains, slopes, peninsulas, length and direction of chief rivers, variety and extent of natural resources.

6. Starting from England, show that "her morning drum-beat circles the globe," by naming colonies, fortified towns, naval and coaling stations.

Questions 1 and 4 and the questions in history below show the importance of keeping children in touch with what is going on in the world. It would be a good plan to have ten minutes devoted each morning, where daily newspapers circulate, to a discussion of the chief events of the previous day, with frequent references to blackboard and map. Where weekly newspapers circulate, it would be well to have a half hour on Friday or Monday devoted to this purpose.