

People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research

University of Batna2
Faculty of Mathematics and Computer sciences
Department of Mathematics

First Term Exam in English

Date: 25/03/202; **Timing:** from 10h00 to 13h00

Teacher: Mr. NACER. D

Academic year: 2020/2021

Level: Master 2 (MA, EDP, AFTOL)

Student's full name:.....

Registration Number:.....

Specialty:

NB

- The students must answer the homework **individually**.
- Use the font Times New Roman.
- Do not forget to write your **full name** on the answer paper.
- Write your **specialty** on the answer paper.
- The work must be sent in "PDF" format to the email below before the **deadline (13h00)**

n.nacerdjamel@gmail.com

- Answers **will not be accepted** after the **deadline**.
- The answer must be sent through your **professional email** that shows your **real name**

Activity one: (5 Points)

Translate the following text into Arabic:

POINTS AND LINES

Geometry is a very old subject. It probably began in Babylonia and Egypt. Men needed practical ways fet, as the knowledge of the Egyptians spread to Greece, the Greeks found the ideas about geometry very intriguing and mysterious. The Greeks began to ask "Why? Why is that true?". In 300 B.C all the known facts about Greek geometry were put into a logical sequence by Euclid. His book, called Elements, is one of the most famous books of mathematics. In recent years, men have improved on Euclid's work. Today geometry includes not only the shape and size of the earth and all things on it, but also the study of relations between geometric objects. The most fundamental idea in the study of geometry is the idea of a point and a line.

The world around us contains many physical objects from which mathematics has developed geometric ideas. These objects can serve as models of the geometric figures. The edge of a ruler, or an edge of this page is a model of a line. We have agreed to use the word line to mean straight line. A geometric line is the property these models of lines have in common; it has length but no thickness and no width; it is an idea. A particle of dust in the air or a dot on a piece of paper is a model of a point. A point is an idea about an exact location; it has no dimensions. We usually use letters of the alphabet to name geometric ideas. For example, we speak of the following models of point as point A, point B and point C.

Activity two : (5 Points)

Match the following items with the corresponding answer

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| 1. projective geometry | a) a plural of radius. A straight line joining the centre of a circle or sphere to any point on the circumference or surface. |
| 2. a segment | b) a transformation consisting of rotations and translations which leaves a given arrangement unchanged. |
| 3. radii | c) the branch of geometry concerned with the properties of solids that are invariant under projection and section. |
| 4. a rigid motion | d) the formation of conclusions from incomplete evidence; guess. |
| 5. mapping | e) logical sequence, cohesion, or connection. |
| 6. a conjecture | f) an entity, quantity, etc., that is unaltered by a particular transformation of coordinates. |
| 7. an invariant | g) a topological structure which prevents the object from being continuously shrunk to a point. |
| 8. continuity | h) a branch of geometry describing the properties of a figure that are unaffected by continuous distortion, such as stretching or knotting. |
| 9. topology | j) a model of the extended complex plane, the complex plane plus a point at infinity. |
| 10. a hole in a mathematical object | k) a part of a line or curve between two points |
| 11. Riemann sphere | l) a ring-shaped surface generated by rotating a circle about a coplanar line that does not intersect the circle |
| 12. manifold | m) representing or transforming (a function, figure, set, etc.) |
| 13. torus | n) a topological space having specific properties |
| 14. helix | o) a curve that lies on a cylinder or cone, at a constant |
| | p) a relation between a set of inputs and a set of permissible outputs with the property that each input is related to exactly one output. |
| | q) the exponent indicating the power to which a fixed number, the base, must be raised to obtain a given number or variable. |

- 1 →
- 2 →
- 3 →
- 4 →
- 5 →
- 6 →
- 7 →
- 8 →
- 9 →
- 10 →
- 11 →
- 12 →
- 13 →
- 14 →

Activity three : (4 Points)

Make the sentences passive. Use “by ...” only if it is necessary to say who does / did the action.

- a. Charles Babbage designed a machine which became the basis for building today’s computer in the early 1800s.

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- b. People submerged geometry in a sea of formulas and banished its spirit for more than 150 years.

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- c. People often appreciate analytical geometry as the logical basis for mechanics and physics.

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- d. Bill Gates founded Microsoft.

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- e. People call the part of the processor which controls data transfers between the various input and output devices the central processing unit (CPU).

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- f. Mathematicians refer to a system with which one coordinates numbers and points as a coordinate system or frame of reference.

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g. People similarly establish a correspondence between the algebraic and analytic properties of the equation $f(x, y) = 0$, and geometric properties of the associated curve.

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h. In 1946, the University of Pennsylvania built the first digital computer.

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Activity four: (6 points)

In your own words, write a short paragraph explaining the paramount utility and usefulness of math in our everyday lives.

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Good Luck!