



# MATHS

## BOOKS - SWAN PUBLICATION

### INTRODUCTION TO EUCLID'S GEOMETRY

#### EXERCISE 5.1

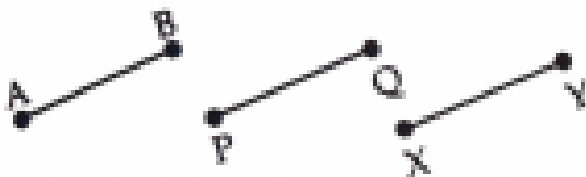
1. The following statement is true or false ?

Give reasons for your answer : Only one line

can pass through a single point.

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2. Which of the following statements are true and which are false? Give reasons for your answer



There are in infinite number of lines which pass through two distinct points.

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3. The following statement is true or false ?

Give reasons for your answer : A terminated line can be produced indefinitely on both the sides.



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4. The following statement is true or false ?

Give reasons for your answer : If two circles are equal, then their radii are equal.





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5. In Fig ., If  $AB = PQ$  and  $PQ = XY$  , then  $AB = XY$  .



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6. Give a definition for each of the following terms. Are there three other terms that need to be defined first? What are they, and how might

you define them?

parallel line?



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7. Give a definition for each of the following terms. Are there three other terms that need to be defined first? What are they, and how might you define them?

parallel line?



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8. Give a definition for the following term. Is there other term that need to be defined first ? What is it and how might you define it ?  
Lines Segment.



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9. Give a definition for the following term. Is there other term that need to be defined first ? What is it and how might you define it ?  
Radius of a Circle.



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**10.** Give a definition for the following term. Is there other term that need to be defined first ? What is it and how might you define it ?  
Square.



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**11.** Consider 'postulate' given below. Given any two distinct points A and B, there exists a third point C which is between A and B. Do this

postulate contains any undefined term ? Is this postulate consistent ? Do they follow from Euclid's postulate ? Explain.



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12. Consider 'postulate' given below. There exist at least three points that are not on the same line. Do this postulate contains any undefined term ? Is this postulate consistent ? Do they follow from Euclid's postulate ? Explain.





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**13.** If a point C lies between two points A and B such that  $AC = BC$ , then prove that  $AC = \frac{1}{2}AB$ . Explain by drawing the figure.



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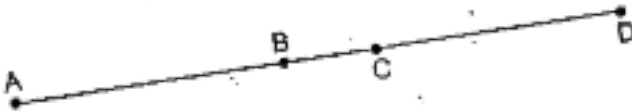
**14.** A point C lies between two points A and B such that  $AC = BC$ , then  $AC = \frac{1}{2}AB$ . Point C is called a midpoint of line segment AB. Prove

that every line segment has one and only one midpoint.



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15. In Fig ., if  $AC = BD$  , then prove that  $AB = CD$  .



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**16.** Why is axiom 5, in the list of Euclid's axioms, considered as a 'universal truth' ?



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## EXERCISE 5.2

**1.** How would you rewrite Euclid's fifth postulate so that it would be easier to understand ?



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2. Does Euclid's fifth postulate imply the existence of parallel lines ? Explain.



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## OBJECTIVE TYPE QUESTIONS

1. State whether the following statements are true (T) or false (F) :

Theorems are statements which are proved ,

using definitions axioms , previously proved statements and deductive reasoning .



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2. If equals are subtracted from equals , the remainders are unequal .



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3. The whole is greater than the part ? .



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4. The things which are double of the same thing are equal to one another.



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5. All right angles are equal to one another? .



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6. The following statement is true or false ?

Give reasons for your answer : A terminated line can be produced indefinitely on both the sides.



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7. Two distinct intersecting lines cannot be parallel to the same line.



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## 8. Fill in the Blanks :

Axioms or postulates are the ..... Which are obvious universal truths .



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9. The things which are double of the same thing are equal to one another.



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**10.** If equals are added to equals the wholes are equal.



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**11.** The things which are double of the same thing are equal to one another.



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**12.** Things which are halves of the ..... things are equal to one another .



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**13.** ..... Line may be drawn from any one point to any other point .



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**14.** A circle can be drawn with any ..... And any radius .



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