# Chapter 5

## Introduction to Euclid's Geometry

**1) Assertion: A figure formed of line segments only is called a rectilinear figure.**

**Reason: A circle is a rectilinear figure.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**2) Assertion: The line drawn from the center of the circle to any point on its circumference is called radius of a circle**

**Reason: the line from any point on the circumference of the circle to the center of the circle is known as diameter of a circle**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**3) Assertion: it is given that AD=BC. Then AC =BD**

**Reason: above line we can prove by Euclid axiom 3 If equals are subtracted from equals, the remainders are equal."**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false.

**4) Assertion: According to Euclid's 1st axiom- "Things which are equal to the same thing are also equal to one another".**

**Reason: if AB = PQ and PQ = XY, then AB = XY**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**5) Assertion: If two circles are equal, then their radii are equal.**

**Reason: The circumference and the centre of both the circles coincide; and thus, the radius of the two circles should be equal.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**6) Assertion: Parallel lines are those lines which never intersect each other**

**Reason: Parallel lines can be two or more lines.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**7) Assertion: The locus of points which is at a same distance from single point is called as ellipse**

**Reason: two lines are said to be perpendicular when angle between them is 80°**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**8) Assertion: Boundaries of surfaces are curves.**

**Reason: surfaces are dimensional figures and their boundaries are one-dimensional which curves are.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**9) Assertion: A dimensionless dot which is drawn on a plane surface is known as point.**

**Reason: A point is that which has no part.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**10) Assertion: A collection of points that has only length and no breadth is known as a line**

**Reason: the line segment cannot be extended from both sides.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**11) Assertion: A collection of points that has only length and no breadth is known as a line**

**Reason: line can be extended from both side**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**12) Assertion: The whole is always greater than the part.**

**Reason: A cake when it is whole or complete, assume that it measures 2 pounds but when a part from it is taken out and measured, its weigh will be smaller than the previous measurement.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**13) Assertion: If A, B and C are any three points on a line and B lies between A and C then prove that AB + BC = AC.**

**Reason: Euclid's axiom 4, states that things which coincide with one another are equal to one another.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false.

**14) Assertion: A Greek mathematician, Thales is credited with giving the first known proof.**

**Reason: The first known proof that 'the rectangle is bisected by its diameter was given by Pythagoras**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false.

**15) Assertion: 3 + 7 = 9 is a statement.**

**Reason: A sentence that can be judged to be true or false, but not both, is called a statement.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**16) Assertion: According to Euclid's second axiom, when equals. are added to equals, the wholes are equal.**

**Reason: Ram and Ravi have the same weight. If they each gain weight by 2 kg, second Euclid's axiom will be used to compare their weights?**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**17) Assertion: Euclid's fifth postulate imply the existence of parallel lines.**

**Reason: The sum of the interior angles will be equal to sum of the two right angles then two lines will not meet each other on either sides and therefore they will be parallel to each other.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**18) Assertion: If lines AB, AC, AD and AE are parallel to line l, the point A, B, C, D, E are collinear.**

**Reason: infinite line can be drawn through A and parallel to l.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

d) both Assertion and reason are false

**19) Assertion: An infinite number of lines can be drawn to pass through a given point.**

**Reason: A line segment has two end-points.**

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is correct but reason is false

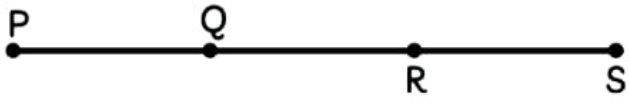
d) both Assertion and reason are false

**1** In last year, cyclone comes out in Andhra Pradesh. Due to this cyclone, many persons lost their lives and property. Deepak and Rohit decided to contribute equal amounts to National Disaster Relief Fund, so that the suffered person get some relief.

(a) In this process, which axiom is used. Also write their statement.

(b) If Deepak contributed ₹30,000, then how much contribute the Rohit?

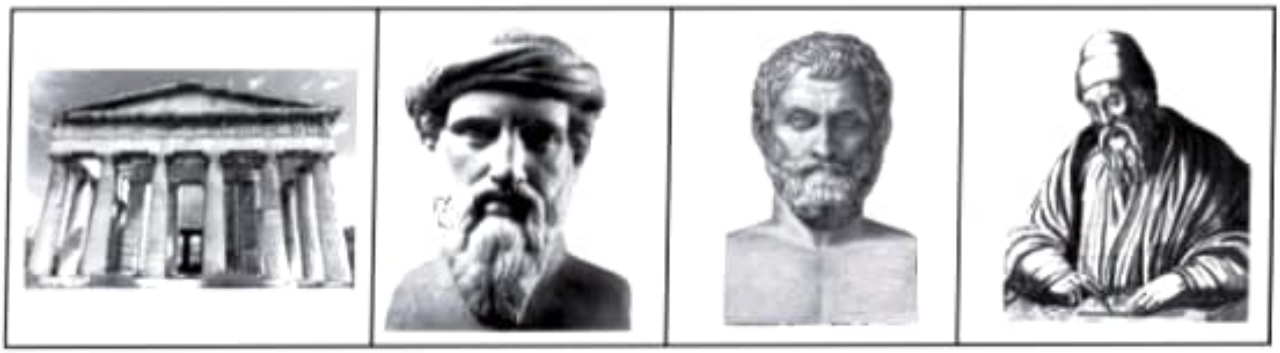
(c) In the given figure, if PR = QS, then prove that PQ = RS.



# Case Study Based Questions

## Case Study 1

A National Public School organised an education trip to a museum. Almost all the students of class IX went to the trip with their teacher of Mathematics. They saw many pictures of mathematicians and read about their contributions in the field of Mathematics. After visiting the museum, teacher asked the following questions from the students.



On the basis of the above information, solve the following questions:

**Q1. Pythagoras was a student of:**

a. Euclid b. Thales

c. Archimedes d. Both a. and b.

**Q2. Name of the mathematician who is visible in the last picture, is:**

a. Euclid b. Pythagoras

c. Thales d. None of these

**Q3. Euclid stated that 'A circle can be drawn with any centre and any radius, is a/an:**

a. definition b. postulate

c. axiom d. proof

**Q4. In which country Thales belong to?**

a. Greece b. Egypt

c. Babylonia d. Rome

## Case Study 2

In a class of Mathematics, the teacher taught a chapter 'Introduction to Euclid's Geometry' in which they taught about different postulates and axioms.

On the basis of the above information, solve the following questions:

**Q1. How many axiom's are exist in Euclid's?**

**Q2. Write any one of the Euclid's postulate.**

**Q3. Write Euclid's axiom 5.**

**Q4. By which Euclid's axiom 'If x + y = 5, then x + y − z = 5 − -Z?**