# Introduction to Euclid's Geometry

## Assertion & Reason Type Questions

**Directions: In the following questions, a statement of Assertion (A) is followed by a statement of a Reason (R). Choose the correct option:**

a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

b. Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

c. Assertion (A) is true but Reason (R) is false.

d. Assertion (A) is false but Reason (R) is true.

**Q1. Assertion (A):** There can be infinite number of lines that can be drawn through a single point.

**Reason (R):** From a single point, we can draw only two lines.

**Answer :** (c) Here Assertion (A) is true but Reason (R) is false.

**Q2. Assertion (A):** According to the Euclid's first axiom, 'Things which are equal to the same thing are also equal to one another.

**Reason (R):** If AB = MN and MN = PQ, then AB = PQ.

**Answer :** (a) Here both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

**Q3. Assertion (A):** According to Euclid's second axiom, when equals are added to equals, then wholes are equal.

**Reason (R):** Anil and Mukesh have the same weight. If they each gain weight by 3 kg, second Euclid's axiom will be used to compare their weights.

**Answer :** (a) Here both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

**Q4. Assertion (A):** If lines AB, AC, AD and AE are parallel to line 1, then the points A, B, C, D and E are collinear.

**Reason (R):** Infinite lines can be drawn through A and Parallel to l.

**Answer :** (c) Assertion (A): It is true to say that, if lines AB, AC, AD and AE are parallel to line l, then the points A, B, C, D and E are collinear.

Reason (R): It is false to say that infinite lines can be drawn through A and parallel to l

Hence, Assertion (A) is true but Reason (R) is false.

**Q5. Assertion (A):** Euclid fifth postulate imply the existence of parallel lines.

**Reason (R):** If 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.

**Answer :** (a) Here both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).