

## EXERCISE 31.1

**1. Find out which of the following sentences are statements and which are not. Justify your answer.**

- (i) Listen to me, Ravi!**
- (ii) Every set is a finite set.**
- (iii) Two non-empty sets have always a non-empty intersection.**
- (iv) The cat pussy is black.**
- (v) Are all circles round?**
- (vi) All triangles have three sides.**
- (vii) Every rhombus is a square.**
- (viii)  $x^2 + 5|x| + 6 = 0$  has no real roots.**
- (ix) This sentences is a statement.**
- (x) Is the earth round?**

**Solution:**

**(i)** Listen to me, Ravi!

The sentence “Listen to me, Ravi! “Is an exclamatory sentence.

∴ It is not a statement.

**(ii)** Every set is a finite set.

This sentence is always false, because there are sets which are not finite.

∴ It is a statement.

**(iii)** Two non-empty sets have always a non-empty intersection.

This sentence is always false, because there are non-empty sets whose intersection is empty.

∴ It is a statement.

**(iv)** The cat pussy is black.

There are some cats which are black, and not black, So, the given sentence may or may not be true.

∴ It is not a statement.

**(v)** Are all circles round?

The given sentence is an interrogative sentence.

∴ It is not a statement.

**(vi)** All triangles have three sides.

The given sentence is a true declarative sentence.

∴ It is a true statement.

**(vii)** Every rhombus is a square.

This sentence is always false, because Rhombuses are not a square.

∴ It is a statement.

**(viii)**  $x^2 + 5|x| + 6 = 0$  has no real roots.

Firstly, let us solve the given expression.

If  $x > 0$ ,

$$x^2 + 5|x| + 6 = 0$$

$$x^2 + 5x + 6 = 0$$

$$x = -3 \text{ or } x = -2$$

Since  $x > 0$ , the equation has no roots.

If  $x < 0$ ,

$$x^2 + 5|x| + 6 = 0$$

$$x^2 - 5x + 6 = 0$$

Since  $x < 0$ , the equation has no real roots.

∴ It is a statement.

**(ix)** This sentence is a statement.

The statement is not indicating the correct value, hence we can say that value contradicts the sense of the sentence.

∴ It is not a statement.

**(x)** Is the earth round?

The given sentence is an interrogative sentence.

∴ It is not a statement.

**2. Give three examples of sentences which are not statements. Give reasons for the answers.**

**Solution:**

a) “We won the match!”

The sentence “We won the match!” Is an exclamatory sentence.

∴ It is not a statement.

b) Can u get me cup of tea?

This sentence is an interrogative sentence.

∴ It is not a statement.

c) Please get me the book which is kept on the table.

This sentence is expressed either as a request or as a command, hence it is an imperative sentence.

∴ It is not a statement.

