EXERCISE 31.1 **PAGE NO: 31.3**

**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 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 sentences 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.