

EXERCISE 14.1

**1. Which of the following sentences are statements?
Give reasons for your answer.**

(i) There are 35 days in a month.

Sol. This sentence is always false because the maximum number of days in a month is 31. Therefore, it is a statement.

(ii) Mathematics is difficult.

Sol. This is not a statement because for some people mathematics can be easy and for some others it can be difficult.

(iii) The sum of 5 and 7 is greater than 10.

Sol. This sentence is always true because the sum is 12 and it is greater than 10. Therefore, it is a statement.

(iv) The square of a number is an even number.

Sol. This sentence is sometimes true and sometimes not true. For example, the square of 2 is even number and the square of 3 is an odd number. Therefore, it is not a statement.

(v) The sides of a quadrilateral have equal length.

Sol. This sentence is sometimes true and sometimes false. For example, squares and rhombus have sides of equal length whereas rectangles and trapezium have sides of unequal length. Therefore, it is not a statement.

(vi) Answer this question.

Sol. It is an order and therefore, is not a statement.

(vii) The product of (-1) and 8 is 8 .

Sol. This sentence is false as the product is (-8) . Therefore, it is a statement.

(viii) The sum of all interior angles of a triangle is 180° .

Sol. This sentence is always true and therefore, it is a statement.

(ix) Today is a windy day.

Sol. It is not clear from the context which day is referred and therefore, it is not a statement.

(x) All real numbers are complex numbers.

Sol. This sentence is always true because all real numbers x can be written in the form $x + i \times 0$ and therefore it is a statement.

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

Sol. The three examples can be:

- (i) Everyone in this room is bold. This is not a statement because from the context it is not clear which room is referred here and the term bold is not precisely defined.
- (ii) She is an engineering student. This is also not a statement because who 'she' is.
- (iii) " $\cos^2 \theta$ is always greater than $1/2$ ". Unless, we know what θ is, we cannot say whether the sentence is true or not.