## *Exercise 1.1*

**Write the correct answer in each of the following:**

**Question 4:**

The product of any two irrational numbers is

(A) always an irrational number

(B) always a rational number

(C) always an integer

(D) sometimes rational, sometimes irrational.

**Answer 4:**

(D) sometimes rational, sometimes irrational.

Solution:

For two irrational numbers $3+\sqrt{2}$ and $3-\sqrt{2}$ ,

the product: $(3+\sqrt{2})(3-\sqrt{2}) = 3^2 - 2 = 7$, which is a rational number.

For two irrational numbers $3+\sqrt{2}$ and $\sqrt{2}$ ,

the product: $(3+\sqrt{2})\sqrt{2} = 3\sqrt{2+2}$, which is an irrational number.