

## Exercise 8.2

### Question: 1

Write each of the following products into exponential form:

(i)  $a \times a \times a \times a \times \dots$  15 times

(ii)  $8 \times b \times b \times b \times a \times a \times a \times a$

(iii)  $5 \times a \times a \times a \times b \times b \times c \times c \times c$

(iv)  $7 \times a \times a \times a \dots$  8 times  $\times b \times b \times b \times \dots$  5 times

(v)  $4 \times a \times a \times a \times \dots$  5 times  $\times b \times b \times \dots$  12 times  $\times c \times c \times c \dots$  15 times

### Solution:

(i)  $a^{15}$

(ii)  $8a^4b^3$

(iii)  $5a^3b^2c^3$

(iv)  $7a^8b^5$

(v)  $4a^5b^{12}c^{15}$

### Question: 2

Write each of the following in the product form:

(i)  $a^2b^5$

(ii)  $8x^3$

(iii)  $7a^3b^4$

(iv)  $15a^9b^8c^6$

(v)  $30x^4y^4z^5$

(vi)  $43p^{10}q^5r^{15}$

(vii)  $17p^{12}q^{20}$

**Solution:**

- (i)  $a \times a \times b \times b \times b \times b \times b$
- (ii)  $8 \times x \times x \times x \times x$
- (iii)  $7 \times a \times a \times a \times b \times b \times b \times b$
- (iv)  $15 \times a \times a \times a \times \dots 9 \text{ times} \times b \times b \times b \times \dots 8 \text{ times}$
- (v)  $30 \times x \times x \times x \times x \times x \times y \times y \times y \times y \times z \times z \dots 5 \text{ times}$
- (vi)  $43 \times p \times p \dots 10 \text{ times} \times q \times q \dots 5 \text{ times} \times r \times r \dots 15 \text{ times}$
- (vii)  $17 \times p \times p \dots 12 \text{ times} \times q \times q \dots 20 \text{ times}$

**Question: 3**

Write down each of the following in the exponential form:

- (i)  $4a^3 \times 6ab^2 \times c^2$
- (ii)  $5xy \times 3x^2y \times 7y^2$
- (iii)  $a^3 \times 3ab^2 \times 2a^2b^2$

**Solution:**

- (i)  $24a^4b^2c^2$
- (ii)  $105x^3y^4$
- (iii)  $6a^6b^4$

**Question: 4**

The number of bacteria in a culture is  $x$  now. It becomes square of itself after one week. What will be its number after two weeks?

**Solution:**

Present number of bacteria in a culture =  $x$

Number of bacteria in the culture after one week =  $x^2$

Number of bacteria in the culture after two weeks =  $(x^2)^2 = x^4$

**Question: 5**

The area of a rectangle is given by the product of its length and breadth. The length of a rectangle is two-thirds of its breadth. Find its area if its breadth is  $x$  cm.

**Solution:**

Breadth of the given rectangle =  $x$  cm

Length of the rectangle =  $\frac{2}{3}x$  cm

Area of the rectangle =  $\frac{2}{3}x \times x = \frac{2}{3}x^2$  cm<sup>2</sup>

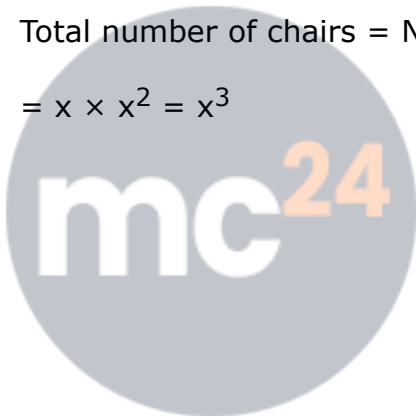
**Question: 6**

If there are  $x$  rows of chairs and each row contains  $x^2$  chairs. Determine the total numbers of chairs.

**Solution:**

Total number of chairs = Number of rows  $\times$  Number of chairs in each row

$$= x \times x^2 = x^3$$



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