Exercise 8.2

Question: 1

Write each of the following products into exponential form:

(i) a × a × a × a × . . . 15 times

(ii) 8 × b × b × b × a × a × a × a

(iii) 5 × a × a × a × b × b × c × c × c

(iv) 7 × a × a × a… 8 times × b × b × b ×.. . 5 times

(v) 4 × a × a × a ×. . . . 5 times × b × b × . . . 12 times × c × c × c . . . 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) $8 \times x \times x \times x$

(iii) $7 \times a \times a \times a \times b \times b \times b \times b$

(iv) $15 \times a \times a \times a \times$. . . 9 times $\times b \times b \times b \times$ . . . 8 times

(v) $30 \times x \times x \times x \times x \times x\, y \times y \times y \times y \times z \times z$ … 5 times

(vi) $43 \times p \times p$ ….. 10 times $\times q \times q$ … 5 times $\times r \times r$ ….. 15 times

(vii) $17 \times p \times p$ … 12 times $\times q \times q$ … 20 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-thirs of its breadth. Find its area if its breadth is x cm.

Solution:

Breadth of the given rectangle = x cm

Length of the rectangle = 23 x cm

Area of the rectangle = $23x \times x = 23\ cm^2$

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 × Number of chairs in each row

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