# ***Rule of indices***

1) $a^m \times a^n = a^{(m+n)}$
( When same bases are multiplied then their power will be added)
Example $5^7 \times 5^3 = 5^{10}$

2) $a^m \div a^n = a^{(m-n)}$ ( If terms having same base are in the form of division then their power will be take away)
Example $7^6 \div 7^2 = 7^4$

3) $(a^m)^n = a^{m \times n}$ ( If there is power to the power then power will be times.)
Example $(2^3)^2 = 2^6$

**Exercise**

Simplify the following indices.

1) $3^2 \times 3^7$ =_____ 2) $5^7 \times 5^8$ =_____

3) $7^9 \div 7^3$ =_____ 4) $2^9 \div 2^5$ =_____

5) $10^7 \times 10^5$ =_____ 6) $(5^2)^3$ =_____

7) $x^2 \times x^5$ =_____ 8) $m^7 \times m^2$ =_____

9) $m^9 \div m^3$ =_____ 10) $p^6 \div p^3$ =_____

Writing the terms as the product of factors.

Example
$42a^2b^3$
$42a^2b^3 = 2 \times 3 \times 7 \times a \times a \times b \times b \times b$

**Write the following terms as the product of factors.**

11) $25a^3b$ =_____

12) $12x^3y^2$ =_____

13) $5x^2y^4$ =_____

14) $3x^2y$ =_____

15) $6a^3b$ =_____