

Rule 3

$$(a^m)^n = a^{mn}$$

To take “powers” of “powers” of a number, **multiply** the indices.

Example 3 :-

$$\begin{aligned}(x^2)^3 &= x^2 \times x^2 \times x^2 \\ &= x^6\end{aligned}$$

Use **Rule 3** to simplify :-

(a) $(x^3)^2$

(b) $(x^4)^2$

(c) $(x^3)^3$

(d) $(y^4)^3$

(e) $(y^3)^4$

(f) $(y^6)^5$

(g) $(a^7)^4$

(h) $(a^9)^6$

(i) $(a^{11})^8$

(j) $(a^{-3})^2$

(k) $(b^{-5})^4$

(l) $(b^5)^{-4}$

(m) $(c^{-2})^{-3}$

(n) $(c^{-4})^{-6}$

(o) $(a^x)^y$.