

Powers & Roots



i. Simplify the following expressions as much as possible:

- $x^5 \times x^3$
- $x^7 \div x^5$
- $x^{1/4}$
- $(x^5)^4$
- x^0
- $x^{2/3}$
- $x^3 \times x^{-2}$
- $(x^4)^{-3}$

ii. Find the value of the following expressions:

- $49^{1/2}$
- $1000^{2/3}$
- $32^{1/5}$
- $\left(\frac{1}{4}\right)^{1/2}$
- $8^{2/3}$
- $81^{3/4}$
- $4^{-1/2}$
- $9^{-1\frac{1}{2}}$

iii. Simplify the following expressions as much as possible:

- $a^2 \times a^{-2}$
- $b^{-1/3} \times b^{4/3}$
- $\frac{(c^{1/4})^2 \times c^{1\frac{1}{2}}}{c}$
- $\frac{d^{1/2} \times d^{2/3}}{d^{1/6}}$
- $e^{1/2} (e^{3/2} - e^{-1/2})$
- $\frac{(f^4)^2 \times f^5}{f^{11}}$