



Air maths tuition

Interact, engage and perform

## Indices - Fractional Powers

$x^{\frac{1}{n}} = \sqrt[n]{x}$	$x^{\frac{m}{n}} = (x^{\frac{1}{n}})^m = (\sqrt[n]{x})^m$ or $x^{\frac{m}{n}} = (x^m)^{\frac{1}{n}} = \sqrt[n]{x^m}$	$x^{-n} = \frac{1}{x^n}$
$8^{\frac{1}{3}} = \sqrt[3]{8}$ $= 2$	$8^{\frac{2}{3}} = (8^{\frac{1}{3}})^2$ or $8^{\frac{2}{3}} = (8^2)^{\frac{1}{3}}$ $= (\sqrt[3]{8})^2$ $= (64)^{\frac{1}{3}}$ $= (2)^2$ $= \sqrt[3]{64}$ $= 4$ $= 4$	$16^{-\frac{3}{2}} = \frac{1}{16^{\frac{3}{2}}}$ $= \frac{1}{(\sqrt{16})^3}$ $= \frac{1}{(4)^3}$ $= \frac{1}{64}$

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