



Air maths tuition

Interact, engage and perform

Indices (Exponents) - Rational Powers Exercise

1) $16^{\frac{1}{2}} = \sqrt{16}$ $= 4$	4) $16^{-\frac{3}{4}} = \frac{1}{16^{\frac{3}{4}}}$ $= \frac{1}{(4\sqrt{16})^3}$ $= \frac{1}{2^3}$ $= \frac{1}{8}$	6) $\left(\frac{8}{27}\right)^{-\frac{2}{3}} = \left(\frac{27}{8}\right)^{\frac{2}{3}}$ $= \left(\sqrt[3]{\frac{27}{8}}\right)^2$ $= \left(\frac{3}{2}\right)^2$ $= \frac{9}{4}$	8) $(1\frac{9}{16}x^{36})^{-\frac{3}{2}} = \left(\frac{25}{16}x^{36}\right)^{-\frac{3}{2}}$ $= \left(\frac{16}{25}x^{36}\right)^{\frac{3}{2}}$ $= \left(\sqrt{\frac{16}{25}x^{36}}\right)^3$ $= \left(\frac{4}{5}x^{18}\right)^3$ $= \frac{64}{125}x^{54}$
2) $64^{\frac{2}{3}} = (3\sqrt[3]{64})^2$ $= 4^2$ $= 16$	5) $\left(\frac{4}{9}\right)^{\frac{3}{2}} = \left(\sqrt{\frac{4}{9}}\right)^3$ $= \left(\frac{2}{3}\right)^3$ $= \frac{8}{27}$	7) $(25x^{16})^{\frac{1}{2}} = \sqrt{25x^{16}}$ $= 5x^8$	
3) $81^{\frac{1}{4}} = 4\sqrt[4]{81}$ $= 3$			

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