Exponent: m/n

Definitions of $a^{m/n}$ **and** $(a^{1/n})^m$

If *m* and *n* are positive integers and $a^{1/n}$ is a real number, then

$$a^{m/n} = (a^{1/n})^m = (a^m)^{1/n} \quad \text{or, equivalently,} \quad a^{m/n} = (\sqrt[n]{a})^m = \sqrt[n]{a^m}$$

One can evaluate the power before taking the root. $8^{2/3} = \sqrt[3]{8^2} = \sqrt[3]{64} = 4$

One can rewrite as a radical raised to a power,
                then evaluate the radical before evaluating the power.

$$1000^{2/3} = \sqrt[3]{1000^2} = (\sqrt[3]{1000})^2 = 10^2 = 100$$

$$\left(\frac{9}{16}\right)^{3/2} = \left(\sqrt{\frac{9}{16}}\right)^3 = \frac{\sqrt{9}^3}{\sqrt{16}^3} = \frac{3^3}{4^3} = \frac{27}{64}$$

TRY:

Rewrite as a radical and evaluate.

$$-32^{2/5}$$

$$81^{3/4}$$

$$\left(\frac{27}{8}\right)^{4/3}$$

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