

Check-Up:

$$1/ \frac{3^{-2}}{1} = \frac{1}{3^2} = \frac{1}{9} \quad 2/$$

$$(-16)^0 = -1 \quad (-16)^0 = 1$$

$$32^{2/5} = (\sqrt[5]{32})^2 \quad 3/$$

$$= 4 \quad -16^0 = -1$$

$$4/ \left(\frac{3}{5}\right)^{-2} = \left(\frac{5}{3}\right)^2$$

$$= \frac{25}{9}$$

$$5/ -36^{1/2} = -\sqrt{36}$$

$$= -6$$

$$6/ \frac{4^{-1}}{3} = \frac{1}{4 \cdot 3}$$

$$= \frac{1}{12}$$

$$7/ \frac{3}{2^{-3}} = \frac{3 \cdot 2^3}{1}$$

$$= \underline{\underline{24}}$$

Practice Problems...

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$$\frac{1}{0.3} \quad \frac{1}{\frac{3}{10}}$$

$$\frac{10}{3}$$

$$3^7 = \frac{1}{3^{-7}}$$

$$\frac{1}{3^4} = 3^{-4}$$

$$\frac{1}{7^{-3}} = 7^3$$

$$\left(\frac{3}{5}\right)^{-2}$$

$$= \left(\frac{5}{3}\right)^2$$

$$= \frac{25}{9}$$

$$\frac{3^2}{5} = \frac{1}{\frac{5}{3^2}}$$

$$= \frac{1}{\frac{5}{9}}$$

$$= \frac{9}{5}$$

$$\left(-\frac{3}{4}\right)^{-2}$$

$$\left(\frac{4}{-3}\right)^2$$

$$\left(\frac{3}{4}\right)^{-2}$$

$$\frac{4}{3}$$

How about NEGATIVE RATIONAL exponents?
(Fraction)

$$\begin{aligned} \left(\frac{9}{16}\right)^{-\frac{3}{2}} &= \left(\frac{16}{9}\right)^{\frac{3}{2}} \\ &= \frac{(\sqrt{16})^3}{(\sqrt{9})^3} \\ &= \left(\frac{4}{3}\right)^3 \\ &= \frac{64}{27} \end{aligned}$$

Write with a positive exponent.

Take the square root.

Cube the result.

Evaluate the following:

$$\begin{aligned} 9^{-\frac{3}{2}} &= \frac{1}{9^{\frac{3}{2}}} \\ &= \frac{1}{(\sqrt{9})^3} \\ &= \frac{1}{2^3} \\ &= \frac{1}{8} \end{aligned}$$

$$\begin{aligned} \left(\frac{8}{27}\right)^{-\frac{4}{3}} &= \left(\frac{27}{8}\right)^{\frac{4}{3}} \\ &= \frac{(27)^{\frac{4}{3}}}{8^{\frac{4}{3}}} \\ &= \frac{(\sqrt[3]{27})^4}{(\sqrt[3]{8})^4} \\ &= \frac{3^4}{2^4} \\ &= \frac{81}{16} \end{aligned}$$

More Practice...

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