Equations with Unknown Indices

Solve each equation to find x:

(a) $2^x = 64$ (b) $3^x = 729$

(c) $5^x = \frac{1}{125}$ (d) $\frac{1}{16} = 4^x$

(e) $(-2)^x = -32$

(f) $\left(\frac{1}{10}\right)^x = \frac{1}{10000}$

Solve each equation to find x:

(a) $9^x = 3$ (b) $2 = 16^x$

(c) $(-8)^x = -2$ (d) $4^x = \frac{1}{2}$

(e) $\frac{1}{3} = 27^x$ (f) $\left(\frac{2}{3}\right)^x = \frac{3}{2}$

Solve each equation to find x:

(a) $4^{2x} = 16$ (b) $2^{x+1} = 16$

(c) $7^{-x} = \frac{1}{49}$ (d) $\frac{1}{512} = 2^{3x}$

(e) $5^{1-x} = 625$ (f) $\frac{1}{4} = 16^{-1/x}$

Find the fractional value of x:

(a) $9^x = 27$ (b) $4 = 8^x$

(c) $16^x = \frac{1}{64}$ (d) $\left(\frac{4}{9}\right)^x = \frac{8}{27}$

(e) $\frac{1}{343} = 49^x$ (f) $27^x = \frac{1}{81}$

Solve:

(a) $2^{3/2} \times 2^x = 2^2$ (b) $\frac{5^3}{5^{2/3}} = 5^x$

(c) $\left(\frac{1}{\sqrt{10}}\right)^3 \times 10^{-2} = 10^x$

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