



Exponents - Negative and Fractional Bases and Exponents

- 1 What is another way of representing this number raised to a negative exponent?

$$7^{-5}$$

A $\frac{7}{5^{-1}}$	B $\frac{1}{7^5}$	C $\frac{-1}{5^7}$
D $\frac{7}{5^7}$	E $\frac{1}{5^7}$	F $\frac{-1}{7^5}$

- 2 What is another way of representing this number raised to a negative exponent?

$$(-10)^{-5}$$

A $\frac{1}{10^5}$	B $\frac{1}{5^{10}}$	C $\frac{-1}{5^{10}}$
D $\frac{10}{5^{-1}}$	E $\frac{-1}{10^5}$	F $\frac{10}{5^{10}}$

- 3 Find the answer when this number is raised to its exponent

$$6^{-2}$$

A $\frac{1}{12}$	B 1
C $\frac{1}{216}$	D 1296
E 33	F $\frac{1}{36}$

- 4 Find the answer when this number is raised to its exponent

$$(-5)^{-3}$$

A $\frac{1}{25}$	B $\frac{-1}{125}$
C 125	D 122
E 625	F $\frac{-1}{625}$

- 5 Find the radical that is the same as this number raised to its exponent

$$75^{\left(\frac{1}{2}\right)}$$

A $4\sqrt{75}$	B $\sqrt{75}$
C 1	D $2\sqrt{75}$
E $\sqrt{75}^2$	F $\frac{1}{\sqrt{75}}$

- 6 Find the answer when this fraction is raised to its exponent

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

A $-\frac{61}{2}$	B $\frac{256}{4}$	C $-\frac{64}{8}$
D $-\frac{4}{6}$	E $\frac{16}{2}$	F $-\frac{1,024}{16}$



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- 7** Find the answer when this fraction is raised to its exponent

$$\left(\frac{-3}{9}\right)^2$$

A 6	B $\frac{9}{81}$	C $-\frac{3}{729}$
D $-\frac{6}{9}$	E $\frac{6}{729}$	F $-\frac{3}{6,561}$

- 8** Factor the base number and simplify to make it easier to solve

$$48^{\left(\frac{-1}{2}\right)}$$

A $\frac{1}{(2 \cdot 2 \cdot 4 \cdot 3)^{\left(\frac{1}{2}\right)}}$	B $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 3)^{\left(\frac{1}{2}\right)}}$
C $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 3)^{\left(\frac{1}{2}\right)}}$	D $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 6)^{\left(\frac{1}{2}\right)}}$
E $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 7)^{\left(\frac{1}{2}\right)}}$	F $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3)^{\left(\frac{1}{2}\right)}}$

- 9** Factor the base number and simplify to make it easier to solve

$$18^{\left(\frac{-1}{2}\right)}$$

A $\frac{1}{(2 \cdot 3 \cdot 3 \cdot 11)^{\left(\frac{1}{2}\right)}}$	B $\frac{1}{(2 \cdot 3 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$
C $\frac{1}{(2 \cdot 3 \cdot 3 \cdot 5)^{\left(\frac{1}{2}\right)}}$	D $\frac{1}{(2 \cdot 2 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$
E $\frac{1}{(2 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$	F $\frac{1}{(2 \cdot 3 \cdot 3 \cdot 13)^{\left(\frac{1}{2}\right)}}$

- 10** Find the answer when this factored number is raised to its exponent

$$(2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3)^{\left(\frac{-1}{2}\right)}$$

A $\frac{1}{12\sqrt{3}}$	B $\frac{1}{4}$	C $\frac{1}{12}$
D $\frac{1}{3}$	E $\frac{1}{5}$	F $\frac{1}{1}$

- 11** Find the answer when this factored number is raised to its exponent

$$(2 \cdot 2 \cdot 3)^{\left(\frac{-1}{2}\right)}$$

A $\frac{1}{\sqrt{3}}$	B $\frac{1}{2\sqrt{3}}$	C $\frac{1}{2}$
D $\frac{1}{3\sqrt{3}}$	E $\frac{1}{5\sqrt{3}}$	F $\frac{1}{2\sqrt{4}}$



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- 12** Factor this exponent's base number and express it as a radical

$$18^{(\frac{1}{2})}$$

A $\sqrt{2 \cdot 3 \cdot 3 \cdot 11}$

B $\sqrt{2 \cdot 2 \cdot 3 \cdot 3}$

C $\sqrt{2 \cdot 3 \cdot 3}$

D $\sqrt{2 \cdot 3 \cdot 3 \cdot 3}$

E $\sqrt{2 \cdot 3 \cdot 3 \cdot 13}$

F $\sqrt{2 \cdot 3 \cdot 3 \cdot 5}$

- 13** Find the answer when this number is raised to its exponent

$$75^{(\frac{1}{2})}$$

A $5\sqrt{4}$	B $3\sqrt{3}$	C 5
D $5\sqrt{3}$	E $\sqrt{3}$	F $4\sqrt{3}$

- 14** Find the radical that is the same as this number raised to its exponent

$$108^{(\frac{-1}{2})}$$

A $\frac{1}{\sqrt{108}^2}$

B $\frac{1}{5\sqrt{108}}$

C $\frac{1}{\sqrt{108}}$

D $\frac{1}{3\sqrt{108}}$

E $\sqrt{108}^2$

F $\frac{1}{2\sqrt{108}}$

- 15** Find the radical that is the same as this number raised to its exponent

$$135^{(\frac{-1}{3})}$$

A $\frac{1}{2\sqrt[3]{135}}$

B $\sqrt[3]{135}$

C $\frac{1}{\sqrt[3]{135}^2}$

D $\frac{1}{\sqrt[3]{135}}$

E $\frac{1}{4\sqrt[3]{135}}$

F $\frac{1}{3\sqrt[3]{135}}$

- 16** Find the answer when this fraction is raised to its exponent

$$\left(\frac{1}{3}\right)^{-1}$$

A $-\frac{1}{0}$	B 3	C $\frac{1}{-3}$
D $-\frac{2}{-3}$	E $\frac{1}{3}$	F 0

- 17** Find the answer when this number is raised to its exponent

$$50^{(\frac{-1}{2})}$$

A $\frac{1}{4\sqrt{2}}$

B $\frac{1}{5}$

C $\frac{1}{5\sqrt{2}}$

D $\frac{1}{5\sqrt{4}}$

E $\frac{1}{2\sqrt{2}}$

F $\frac{1}{\sqrt{2}}$



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18 Factor this exponent's base number and express it as a radical

$$180^{(-\frac{1}{2})}$$

A $\frac{1}{\sqrt{2 \cdot 3 \cdot 3 \cdot 5}}$	B $\frac{1}{\sqrt{2 \cdot 2 \cdot 3 \cdot 3 \cdot 5}}$
C $\frac{1}{\sqrt{2 \cdot 2 \cdot 3 \cdot 3 \cdot 5 \cdot 5}}$	D $\frac{1}{\sqrt{2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 5}}$
E $\frac{1}{\sqrt{2 \cdot 2 \cdot 3 \cdot 15}}$	F $\frac{1}{\sqrt{2 \cdot 2 \cdot 3 \cdot 3}}$

19 Factor this exponent's base number and express it as a radical

$$162^{(-\frac{1}{3})}$$

A $\frac{1}{\sqrt[3]{2 \cdot 3 \cdot 3 \cdot 9}}$	B $\frac{1}{\sqrt[3]{2 \cdot 3 \cdot 3 \cdot 3 \cdot 3}}$
C $\frac{1}{\sqrt[3]{2 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 5}}$	D $\frac{1}{\sqrt[3]{2 \cdot 3 \cdot 3 \cdot 3}}$
E $\frac{1}{\sqrt[3]{2 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3}}$	F $\frac{1}{\sqrt[3]{2 \cdot 3 \cdot 9 \cdot 3}}$

20 Find the answer when this fraction is raised to its exponent

$$\left(\frac{1}{2}\right)^{-1}$$

A 2	B $\frac{1}{4}$	C $\frac{1}{0}$
D $\frac{1}{2}$	E 1	F $-\frac{1}{2}$

21 Find the answer when this number is raised to its exponent

$$96^{(-\frac{1}{2})}$$

A $\frac{1}{5\sqrt{6}}$	B $\frac{1}{3\sqrt{6}}$	C $\frac{1}{4\sqrt{2}}$
D $\frac{1}{4\sqrt{6}}$	E $\frac{1}{4}$	F $\frac{1}{\sqrt{6}}$

22 Find the answer when this fraction is raised to its exponent

$$\left(\frac{1}{9}\right)^{(-\frac{1}{2})}$$

A $\frac{3}{\sqrt{2}}$	B $\frac{3}{\sqrt{3}}$	C 1
D $\frac{3\sqrt{3}}{4}$	E 3	F $\frac{3}{\sqrt{4}}$

23 Find the answer when this fraction is raised to its exponent

$$\left(\frac{7}{2}\right)^{-1}$$

A $\frac{1}{4}$	B $\frac{1}{0}$	C $-\frac{7}{2}$
D $\frac{6}{-2}$	E $\frac{2}{7}$	F $\frac{7}{0}$



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24 Find the answer when this fraction is raised to its exponent

$$\left(\frac{1}{25}\right)^{\left(\frac{-1}{2}\right)}$$

A 5	B $\frac{5\sqrt{4}}{5}$	C $\frac{1}{3}$
D $\frac{1}{4}$	E $\frac{4}{3}$	F $\frac{1}{\sqrt{4}}$

25 Find the answer when this fraction is raised to its exponent

$$\left(\frac{2}{3}\right)^{-1}$$

A $-\frac{2}{0}$	B $\frac{1}{0}$	C 1
D $\frac{3}{2}$	E 0	F 2

26 Find the answer when this fraction is raised to its exponent

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

A $\frac{12}{9}$	B $\frac{7}{9}$	C $\frac{16}{9}$
D $\frac{64}{27}$	E $\frac{16}{24}$	F $\frac{1,024}{6}$

27 Find the answer when this fraction is raised to its exponent

$$\left(\frac{4}{49}\right)^{\left(\frac{-1}{2}\right)}$$

A $\frac{4}{3}$	B $\frac{1}{5}$	C 7
D 2	E 3	F $\frac{7}{2}$

28 Find the answer when this fraction is raised to its exponent

$$\left(\frac{2}{9}\right)^2$$

A $\frac{1}{84}$	B 2	C $\frac{4}{9}$
D $\frac{4}{729}$	E $\frac{16}{9}$	F $\frac{4}{81}$

29 Find the answer when this fraction is raised to its exponent

$$\left(\frac{16}{81}\right)^{\left(\frac{-1}{4}\right)}$$

A $\frac{3}{3}$	B $\frac{1}{2}$	C $3\sqrt[4]{3}$
D $\frac{3}{2}$	E 1	F $\frac{1}{2\sqrt[4]{4}}$