Indices: Fractional Powers

1

Work out $125^{\frac{2}{3}}$

the bottom is the root

the top is the power

Answer _____

2

Work out $16^{\frac{3}{2}}$

the bottom is the root

4

the top is the power

Answer _____

3

Work out $81^{\frac{3}{4}}$

the bottom is the root

the top is the power

Answer _____

4

Work out $4^{\frac{5}{2}}$

the bottom is the root

the top is the power

Answer _____

5

Work out $27^{-\frac{2}{3}}$

the minus means one over

$= \frac{1}{\square}$

the bottom is the root

the top is the power

Answer _____

6

Work out $\left(\frac{8}{27}\right)^{\frac{2}{3}}$

Answer _____

7

Jo says $36^{\frac{1}{2}} = 18$.
Explain Jo's mistake, then find the right answer.

Answer _____

8

Write $\sqrt[3]{5}$ as a power of 5.

Answer _____

Indices: Fractional Powers *further practice*

9

Work out

$$100^{-\frac{3}{2}}$$

Answer _____

10

Work out

$$\left(\frac{27}{64}\right)^{-\frac{2}{3}}$$

Answer _____

11

Write in order, smallest first.

$$49^{\frac{1}{2}} \quad 4^{\frac{3}{2}} \quad 125^{-\frac{1}{3}} \quad 81^{\frac{1}{4}}$$

Order _____

12

The time, T seconds, for one swing of a pendulum L metres long is about the formula below. Find T when $L = 2.25$

$$T = 2 \times L^{\frac{1}{2}}$$

Answer _____

13

Find the value of x.

$$8^x = \frac{1}{4}$$

Answer _____

14

The number of cells, N, in a sample t hours after it is set up is given by the formula below. How many cells are there after 90 minutes?

$$N = 32 \times 4^t$$

Answer _____

15

A cube has a volume of $\frac{125}{8}$ cm^3.

Use fractional powers to find its total surface area.

Answer _____

16

Ali says $16^{-\frac{1}{2}} = -8$. He has made two mistakes. Explain them, then find the right answer.

Answer _____