

Fractional and Negative Indices

1

Work out $8^{\frac{2}{3}}$

the bottom is the root

2

the top is the power

Answer _____

2

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

the bottom is the root

3

the top is the power

Answer _____

3

Work out $16^{\frac{3}{4}}$

the bottom is the root

the top is the power

Answer _____

4

Work out $25^{\frac{3}{2}}$

the bottom is the root

the top is the power

Answer _____

5

Work out 4^{-2}

the power

a negative means 1 over

Answer _____

6

Work out 2^{-3}

the power

a negative means 1 over

Answer _____

7

Find the value of n . $2^n = \frac{1}{8}$

Answer _____

8

Write $\frac{1}{25}$ as a power of 5.

Answer _____

Fractional and Negative Indices *further practice*

9

Work out

$$64^{\frac{2}{3}}$$



Answer _____

10

Work out

$$9^{-\frac{1}{2}}$$



Answer _____

11

A cube has a volume of $\frac{8}{27} \text{ m}^3$.
Find the area of one face.



Answer _____

12

Write in order, smallest first.

$$49^{\frac{1}{2}} \quad 4^{-\frac{1}{2}} \quad 27^{\frac{2}{3}} \quad 32^{\frac{2}{5}}$$



Order _____

13

Find the value of x .

$$8^x = 4$$



Answer _____

14

The value, £ V , of a machine t years after it is bought is given by the formula below. Find its value after 3 years.

$$V = 6400 \times 4^{-\frac{t}{2}}$$



Answer _____

15

The number of bacteria, N , after t hours is given by the formula below. After how many minutes are there 800 bacteria?

$$N = 100 \times 4^t$$



Answer _____

16

Amy says this number is negative because the power is negative. Is Amy right? Explain.

$$16^{-\frac{1}{2}}$$



Answer _____