GCSE HIGHER · REVISION MAT 4

Laws of indices

1 Write in index form.

$3 \times 3 \times 3 \times 3 \times 3$

2 Work out the value of

$4^{-1/2}$

3 Explain why 5^{-2} is positive.

4 One cell splits into 2 every hour.

Write the number of cells after one day as a power of 2.

5 Show that

$1000^{2/3} = 100$

6 Find n.

$25^{n} = 125$

7 Show that

$(2x^3)^4 \div 4x^2 = 4x^{10}$

8 Solve

$4^{x} = 8^{x-1}$

Mr&Mrs MATHS

ANSWERS · REVISION MAT 4

Laws of indices

1 3^5

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

$\frac{1}{2}$

3 $5^{-2} = \frac{1}{25}$

A negative power gives a reciprocal, not a negative number.

4 24 hours, doubling each hour

2^{24}

5 $(\sqrt[3]{1000})^2 = 10^2$

$= 100$

6 $5^{2n} = 5^3$

$n = 1.5$

7 $16x^{12} \div 4x^2$

$= 4x^{10}$

8 $2^{2x} = 2^{3x-3}$

$x = 3$

Mr&Mrs MATHS