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GCSE Exam Questions

Fractional Indices | Algebra

GCSE Exam Questions: Fractional Indices

1) (a) Write down the value of $144^{\frac{1}{2}}$

(1)

(b) Work out the value of $144^{\frac{1}{2}} \times 27^{\frac{1}{3}}$

(2)

(3 marks)

2) (a) Write down the value of $125^{\frac{2}{3}}$

(2)

(b) Simplify $(125a^9)^{\frac{2}{3}}$

(2)

(4 marks)

GCSE Exam Questions: Fractional Indices

3) (a) Solve $8^x = 2$

(1)

(b) Solve $16^{2x} = 2$

(2)
(3 marks)

4) (a) Work out the value of $\left(\frac{1}{216}\right)^{\frac{1}{3}}$

(1)

(b) Simplify $\left(\frac{16a^2}{9b^4}\right)^{\frac{3}{2}}$

(2)
(3 marks)

GCSE Exam Questions: Fractional Indices Answers

	Question	Answer	Marks
1) (a)	Write down the value of $144^{\frac{1}{2}}$	(a) 12	(1)
(b)	Work out the value of $144^{\frac{1}{2}} \times 27^{\frac{1}{3}}$	(b) 12 or 3 36	(1) (1)
2) (a)	Write down the value of $125^{\frac{2}{3}}$	(a) $\sqrt[3]{125} = 5$ $5 \times 5 = 25$	(1) (1)
(b)	Simplify $(125a^9)^{\frac{2}{3}}$	(b) 25 or a^6 $25a^6$	(1) (1)
3) (a)	Solve $8^x = 2$	(a) $x = \frac{1}{3}$	(1)
(b)	Solve $16^{2x} = 2$	(b) $2x = \frac{1}{4}$ $x = \frac{1}{8}$	(1) (1)
4) (a)	Work out the value of $\left(\frac{1}{216}\right)^{\frac{1}{3}}$	(a) $\frac{1}{6}$	(1)
(b)	Simplify $\left(\frac{16a^2}{9b^4}\right)^{\frac{3}{2}}$	(b) 64 and 27 or a^3 and b^6 $\frac{64a^3}{27b^6}$	(1) (1)

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