



THIRD SPACE
LEARNING

GCSE Exam Questions

Powers and Roots | Number

GCSE Exam Questions: Powers and Roots

1) (a) Simplify $12x^3 \div 3x^5$

(2)

(b) Evaluate 5^{-3} . Write your answer as a fraction.

(1)
(3 marks)

2) (a) Show that $4^2 = 2^4$ using laws of indices.

(1)

(b) Let $x \geq 0$. State 3 more values of x where 2^x is a power of 4.

(1)
(2 marks)

3) (a) Calculate the value of $(100^2 \div 10^3)^3$
Express your answer as a power of 10.

(2)

(b) Calculate $(3 \times 10^4) \times (4 \times 10^{-1})$.
Write your answer in standard form.

(2)
(4 marks)

GCSE Exam Questions: Powers and Roots

4) (a) Evaluate $\left(\frac{4}{25}\right)^{-\frac{1}{2}}$

(2)

(b) Let $x = \frac{27}{64}$. Calculate $x^{\frac{2}{3}}$.

(2)
(4 marks)

GCSE Exam Questions: Powers and Roots Answers

	Question	Answer	Marks
1) (a)	Simplify $12x^3 \div 3x^5$	(a) $12x^3 \div 3x^5 = 4x^{3-5}$	(1)
		$4x^{-2}$ or $\frac{4}{x^2}$	(1)
(b)	Evaluate 5^{-3} . Write your answer as a fraction.	(b) $5^{-3} = \frac{1}{5^3} = \frac{1}{125}$	(1)
2) (a)	Show that $4^2 = 2^4$ using laws of indices.	(a) $4^2 = (2^2)^2 = 2^4$	(1)
(b)	Let $x \geq 0$. State 3 more values of x where 2^x is a power of 4.	(b) Any 3 positive even numbers, excluding 4	(1)
3) (a)	Calculate the value of $(100^2 \div 10^3)^3$. Express your answer as a power of 10.	(a) $((10^2)^2 \div 10^3)^3 = (10^4 \div 10^3)^3$	(1)
		$= (10^{4-3})^3 = 10^3$	(1)
(b)	Calculate $(3 \times 10^4) \times (4 \times 10^{-1})$. Write your answer in standard form.	(b) 12×10^3	(1)
		1.2×10^4	(1)
4) (a)	Evaluate $(\frac{4}{25})^{-\frac{1}{2}}$	(a) $\frac{4}{25} = (\frac{2}{5})^{-1}$	(1)
		$= \frac{5}{2} = 2.5$	(1)
(b)	Let $x = \frac{27}{64}$. Calculate $x^{\frac{2}{3}}$.	(b) $(\frac{3}{4})^2$	(1)
		$\frac{9}{16}$	(1)

Where to go next?

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