

GCSE Maths Standard Form, Indices and Surds (Higher): check-up and exam-style questions: answers

GCSE Maths - Standard Form, Indices and Surds - Higher - Test yourself

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch06-standard-form-indices-surds/higher/check-up-and-exam-style-questions/

Exercise 6Z Check-up (non-calculator) Non-calculator

- 1 Write 45,000 in standard form.

Answer: 4.5×10^4

- 2 Write 3.2×10^{-3} as an ordinary number.

Answer: 0.0032

- 3 Write $(2^5 \times 2^3) \div 2^4$ as a single power of 2.

Answer: 2^4

- 4 Work out 5^{-2} .

Answer: $\frac{1}{25}$

- 5 Simplify $3x^2 \times 4x^3$.

Answer: $12x^5$

- 6 Work out $(2 \times 10^3) \times (4 \times 10^5)$. Give your answer in standard form.

Answer: 8×10^8

- 7 Work out the area of a circle with radius 5 cm. Give your answer in terms of π .

Answer: $25\pi \text{ cm}^2$

- 8 Work out $\sqrt{49} + \sqrt[3]{8}$.

Answer: 9

- 9 Simplify $\sqrt{48}$.

Answer: $4\sqrt{3}$

- 10 Work out $8^{2/3}$.

Answer: 4

Exercise 6X Exam-style questions Non-calculator

- 1 Write 7,300,000 in standard form.

[1 mark]

Answer: 7.3×10^6

2 Write 4.5×10^{-4} as an ordinary number. [1 mark]

Answer: 0.00045

3 Write $2^3 \times 2^4$ as a single power of 2. [1 mark]

Answer: 2^7

4 Work out $(3.2 \times 10^4) \times (2.5 \times 10^3)$. Give your answer in standard form. [2 marks]

Answer: 8×10^7

5 Simplify $6a^5 \div 2a^2$. [2 marks]

Answer: $3a^3$

6 Work out 4^{-2} . Give your answer as a fraction. [2 marks]

Answer: $\frac{1}{16}$

7 Write these numbers in order of size, smallest first: 6.1×10^3 , 8.2×10^{-2} , 5.9×10^3 , 1.7×10^4 . [2 marks]

Answer: 8.2×10^{-2} , 5.9×10^3 , 6.1×10^3 , 1.7×10^4

8 A shape is made from a rectangle 8 cm by 3 cm and a semicircle of diameter 8 cm on one end. Work out the exact area of the shape. [3 marks]

Answer: $(24 + 8\pi) \text{ cm}^2$

9 Light travels at 3×10^8 m/s. The Moon is 3.84×10^8 m from the Earth. Work out how many seconds light takes to travel from the Moon to the Earth. Give your answer to 3 significant figures in standard form.

Answer: $1.28 \times 10^0 \text{ s}$ [3 marks]

10 A cube has a volume of 343 cm^3 . Work out the total surface area of the cube. [3 marks]

Answer: 294 cm^2

11 Simplify $\sqrt{75} + \sqrt{12}$. Give your answer in the form $a\sqrt{3}$. [3 marks]

Answer: $7\sqrt{3}$

12 Expand and simplify $(3 + \sqrt{2})(3 - \sqrt{2})$. [2 marks]

Answer: 7

13 Write $\frac{12}{\sqrt{6}}$ in the form $a\sqrt{6}$, where a is an integer. [2 marks]

Answer: $2\sqrt{6}$

14 Rationalise the denominator of $\frac{1}{3 + \sqrt{5}}$. Give your answer in its simplest form. [3 marks]

Answer: $\frac{3 - \sqrt{5}}{4}$

15 Work out $16^{-3/4}$. [3 marks]

Answer: $\frac{1}{8}$

16 Solve $4^x = 8$. [3 marks]

Answer: $x = \frac{3}{2}$

17 Show that $(\sqrt{3} + \sqrt{12})^2 = 27$. [4 marks]

Answer: 27