

Indices and Standard Form

GCSE Mathematics • **Foundation Tier** • Grades 4–5 • Non-calculator

Name:

Class:

Total: / 46

Show all your working. Marks are given for correct method as well as the final answer.

1. Simplify $x^4 \times x^3$. [1 mark]

Answer:

2. Simplify $y^9 \div y^4$. [1 mark]

Answer:

3. Simplify $(a^3)^4$. [2 marks]

Answer:

4. Simplify $3x^2 \times 4x^5$. [2 marks]

Answer:

5. Simplify $\frac{20x^6}{5x^2}$. [2 marks]

Answer:

6. Work out 5^0 . [1 mark]

Answer:

7. Work out 2^{-3} . [2 marks]

Answer:

8. Work out $16^{\frac{1}{2}}$. [2 marks]

Answer:

9. Work out $27^{\frac{1}{3}}$. [2 marks]

Answer:

10. Simplify $(2x^3)^4$. [3 marks]

Answer:

11. Write 4 600 in standard form. [2 marks]

Answer:

12. Write 0.00072 in standard form. [2 marks]

Answer:

13. Write 3.5×10^4 as an ordinary number. [2 marks]

Answer:

14. Write 8.1×10^{-3} as an ordinary number. [2 marks]

Answer:

15. Explain why 43×10^5 is not in standard form. [2 marks]

Answer:

16. Work out $(3 \times 10^4) \times (2 \times 10^3)$, giving your answer in standard form. [3 marks]

Answer:

17. Work out $(8 \times 10^9) \div (4 \times 10^2)$, giving your answer in standard form. [3 marks]

Answer:

18. Work out $(5 \times 10^3) \times (4 \times 10^6)$, giving your answer in standard form. [4 marks]

Answer:

19. Work out $(6 \times 10^5) + (3 \times 10^4)$, giving your answer in standard form. **[3 marks]**

Answer:

20. The mass of a grain of sand is about 5×10^{-5} kg.

(a) Work out the mass of 2×10^6 grains, in standard form. **[3 marks]**

(b) Write that mass as an ordinary number. **[2 marks]**

Answer: