JRA Tutors
Private tuition and small online Study Pods

Indices

Grade 4 topic · Foundation and Higher · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Foundation students: aim for Questions 1–15 (34 marks) and have a go at the rest. Higher students: complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 54 marks.

Warm-up

1 Write $9^4 \times 9^4$ as a single power of 9. **[1 mark]**

Answer _____

2 Write $8^6 \div 8^3$ as a single power of 8. **[2 marks]**

Answer _____

3 Write $(9^6)^3$ as a single power of 9. **[2 marks]**

Answer _____

4 Work out 2^7. **[2 marks]**

Answer _____

5 Simplify $y^2 \times y^5$. **[2 marks]**

Answer _____

Core

6 Work out 5^0. **[2 marks]**

Answer _____

7 Write 7^{-3} as a fraction. **[2 marks]**

Answer _____

8 Simplify $a^8 \div a^2$. **[2 marks]**

Answer _____

9 Simplify $(b^4)^2$. **[2 marks]**

Answer _____

10 Work out $2^{-3} + 2^{-1}$. **[2 marks]**

Answer _____

Stretch

11 Simplify $(3x^4)(5x^4)$. **[3 marks]**

Answer _____

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

Answer _____

13 Simplify $16x^7 \div 4x^4$. **[3 marks]**

Answer _____

14 Simplify $(4x^2y)(3xy^4)$. **[3 marks]**

Answer _____

15 Simplify $(3x^5)^2$. **[3 marks]**

Answer _____

Challenge

16 Solve $2^x = 64$. **[4 marks]**

Answer _____

17 Solve $3^{x+1} = 81$. **[4 marks]**

Answer _____

18 Simplify $(2x^3y)^4 \div 8x^5y^2$. **[4 marks]**

Answer _____

19 Solve $5^{2x-1} = 125$. **[4 marks]**

Answer _____

20 Work out $(2/3)^{-2}$. **[4 marks]**

Answer _____