JRA Tutors
Private tuition and small online Study Pods

Powers and Roots

Grade 1 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 (30 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: 50 marks.

Warm-up

1 Work out 12^2. **[1 mark]**

Answer _____

2 Work out $\sqrt{49}$. **[1 mark]**

Answer _____

3 Work out 8^2. **[1 mark]**

Answer _____

4 Work out $\sqrt{16}$. **[1 mark]**

Answer _____

5 Work out 3^2. **[1 mark]**

Answer _____

Core

6 Work out $11^2 + 6^3$. **[2 marks]**

Answer _____

7 Work out 3^3. **[2 marks]**

Answer _____

8 Work out $2^2 + 2^3$. **[2 marks]**

Answer _____

9 Work out 5^3. **[2 marks]**

Answer _____

10 Work out $7^2 + 5^3$. **[2 marks]**

Answer _____

Stretch

11 Work out $2^3 \times 3^2$. **[3 marks]**

Answer _____

12 Work out $\sqrt{81} + \sqrt{36}$. **[3 marks]**

Answer _____

13 Write $5^2 - 3^3$ as a single number. **[3 marks]**

Answer _____

14 Find the value of x if $x^2 = 169$ and $x > 0$. **[3 marks]**

Answer _____

15 Work out $10^3 \div 2^3$. **[3 marks]**

Answer _____

Challenge

16 Work out $\sqrt{(5^2 + 12^2)}$. **[4 marks]**

Answer _____

17 Find x if $x^3 = 125$. **[4 marks]**

Answer _____

18 Work out $(3^2)^2 - 4^3$. **[4 marks]**

Answer _____

19 Which is larger, 3^4 or 4^3? By how much? **[4 marks]**

Answer _____

20 Work out $2^4 \times 5^2 \div 10$. **[4 marks]**

Answer _____