Simplifying Surds

GCSE Maths · Higher tier · Grades 6–8 · About 25 minutes · 8 questions

Name _____ Date _____ Score / 8

WHAT YOU WILL PRACTISE

- Simplify a surd using square factors
- Add, subtract and multiply surds
- Rationalise a denominator of the form √a

WORKED EXAMPLE

Simplify √48.

1. Find the largest square number that divides into 48: 16.
2. Split the root: √48 = √16 × √3.
3. Work out √16 = 4, so √48 = 4√3.

Answer: 4√3

Questions

Show your working in the space under each question.

1. Simplify √12

2. Simplify √50

3. Simplify √72

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4. Simplify $\sqrt{3} \times \sqrt{12}$

5. Simplify $3\sqrt{2} + 5\sqrt{2}$

6. Simplify $\sqrt{18} + \sqrt{8}$

7. Work out $(2 + \sqrt{3})(2 - \sqrt{3})$

8. Rationalise the denominator of $6/\sqrt{3}$

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Answers: Simplifying Surds

Mark your own work, then go back to any question you got wrong before reading the tutor tip.

Q	QUESTION	ANSWER
1	Simplify √12	**2√3**
2	Simplify √50	**5√2**
3	Simplify √72	**6√2**
4	Simplify √3 × √12	**6**
5	Simplify 3√2 + 5√2	**8√2**
6	Simplify √18 + √8	**5√2**
7	Work out (2 + √3)(2 − √3)	**1**
8	Rationalise the denominator of 6/√3	**2√3**

TUTOR TIP

Look for the largest square number that divides into the number under the root: 4, 9, 16, 25, 36 and so on.

Stuck on a question? Work through it live with a tutor.

YFCampus offers one-to-one online Maths tutoring matched to your school curriculum. Book a free trial class at **www.yfcampus.com/uk/book-lesson**

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