Simplifying Surds

Year 10–11 Maths · Years 10–11 · NCEA Level 1 · 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/nz**

Written for students aged 13 to 16 and suitable for Years 10–11. Check your school’s curriculum for the exact order of topics. YFCampus is independent and is not affiliated with any exam board or education ministry.