

AQA, OCR, Edexcel

GCSE

GCSE Maths

Surds Questions

Name:

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Total Marks: /18

Surds (Hard)

1. Rationalise the denominator of the expression $\frac{1+\sqrt{5}}{3+\sqrt{5}}$. Give your answer in its simplest form:

(2 Marks)

2. Express $\frac{3+\sqrt{3}}{3\left(\frac{1}{\sqrt{3}}\right)}$ in the form $a + \sqrt{b}$, where both a and b are integers.

(2 marks)

3. Express $\frac{(1+\sqrt{5})}{\left(2+\frac{5}{\sqrt{5}}\right)}$ in the form $a + \sqrt{b}$, where both a and b are integers.

(2 Marks)

4. Show that the following surd expression can be written as $k\sqrt{a}$, where k and a are integers:

$$\frac{4}{3}\sqrt{\frac{300}{4}} + \frac{10}{\sqrt{3}}$$

(4 Marks)

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5. Show that the following surd expression can be written as $\frac{a}{b}\sqrt{c}$, where a , b and c are all integers:

$$\left(\frac{4}{3}\right)^{\frac{1}{2}} + \left(\frac{1}{3}\right)^{-\frac{1}{2}}$$

(4 Marks)

6. Simplify the following expression:

$$\sqrt{4\frac{12}{9} + \left(\frac{1}{3}\right)^{\frac{1}{2}}}$$

(4 Marks)