AQA, OCR, Edexcel

GCSE

GCSE Maths

Surds Answers

Name:

M M E

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Total Marks: /18

Surds (Hard)

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

$= \frac{1}{2}(\sqrt{5} - 1)$

(2 Marks)

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

$= 1 + \sqrt{3}$

(2 marks)

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

$= 3 - \sqrt{5}$

(2 Marks)

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

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

$= 10\sqrt{3}$

(4 Marks)

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

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

$= \frac{5}{3}\sqrt{3}$

(4 Marks)

6. Simplify the following expression:

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

$= \frac{5}{\sqrt{3}}$

(4 Marks)