

Surds – The Basics

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments

You must **not** use a calculator.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

1 Simplify the following expressions:

1(a)

$$2(\sqrt{5})$$

[1 mark]

Answer _____

1(b)

$$\sqrt{7} \times \sqrt{7}$$

[1 mark]

Answer _____

1(c)

$$(\sqrt{11})^2$$

[1 mark]

Answer _____

1(d)

$$\sqrt{8} \times \sqrt{2}$$

[1 mark]

Answer _____

1(e)

$$\sqrt{18} \times \sqrt{2}$$

[1 mark]

Answer _____

Turn over for next question

Turn over ►

2 Write the following surds in the form $a\sqrt{b}$ where a and b are integers.

2(a) $\sqrt{20}$

[1 mark]

Answer _____

2(b) $\sqrt{45}$

[1 mark]

Answer _____

2(c) $\sqrt{32}$

[1 mark]

Answer _____

2(d) $\sqrt{24}$

[1 mark]

Answer _____

2(e) $\sqrt{112}$

[1 mark]

Answer _____

Turn over for next question

- 3** Simplify the following expressions:
Give all answer in its simplest form.

3(a) $3\sqrt{2} \times 3\sqrt{2}$

[1 mark]

Answer _____

3(b) $\frac{\sqrt{50}}{5}$

[1 mark]

Answer _____

3(c) $2(2\sqrt{2} \times 3\sqrt{2})$

[1 mark]

Answer _____

3(d) $2\sqrt{2} \times 4\sqrt{5}$

[1 mark]

Answer _____

3(e) $4\sqrt{24} - 5\sqrt{6}$

[1 mark]

Answer _____

Turn over for next question

Turn over ►

4

Simplify $\sqrt{48} - \sqrt{12}$ Giving your answer in the form $m\sqrt{3}$ where m is an integer.**[3 marks]**

Answer

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Turn over ►

5 Expand and simplify the following expressions:

5(a) $(2 - \sqrt{3})(1 + \sqrt{3})$

[2 marks]

Answer _____

5(b) $(1 - \sqrt{5})(2 + \sqrt{3})$

[1 mark]

Answer _____

5(c) $(2 + 3\sqrt{3})(6 + 5\sqrt{3})$

[2 marks]

Answer _____

End of Questions

END