Calculating with Surds

SCAN ME

REVISE THIS TOPIC

CHECK YOUR ANSWERS

SCAN ME

1 Express $\sqrt{12}$ in its simplest form. **[1 mark]**

Answer _____

2 Express $\sqrt{50}$ in its simplest form. **[1 mark]**

Answer _____

3 Express $\sqrt{500}$ in its simplest form. **[1 mark]**

Answer _____

4 Express $\sqrt{27}$ in its simplest form. **[1 mark]**

Answer _____

5 Express $\sqrt{98}$ in its simplest form. **[1 mark]**

Answer _____

6 Express $\sqrt{48}$ in its simplest form. **[1 mark]**

Answer _____

For the entire booklet

6

7 Express $5\sqrt{8}$ in its simplest form. **[1 mark]**

Answer _____

8 Express $4\sqrt{18}$ in its simplest form. **[1 mark]**

Answer _____

9 Express $2\sqrt{200}$ in its simplest form. **[1 mark]**

Answer _____

10 Express $9\sqrt{20}$ in its simplest form. **[1 mark]**

Answer _____

11 Express $7\sqrt{640}$ in its simplest form. **[1 mark]**

Answer _____

12 Express $5\sqrt{80}$ in its simplest form. **[1 mark]**

Answer _____

13 Express $3\sqrt{72}$ in its simplest form. **[1 mark]**

Answer _____

Solutions

14 Work out $\sqrt{6} \times \sqrt{3}$ giving your answer in its simplest form. **[2 marks]**

Answer _____

15 Work out $\sqrt{10} \times \sqrt{6}$ giving your answer in its simplest form. **[2 marks]**

Answer _____

16 Work out $2\sqrt{5} \times 5\sqrt{8}$ giving your answer in its simplest form. **[2 marks]**

Answer _____

17 Work out $4\sqrt{2} \times 2\sqrt{12}$ giving your answer in its simplest form. **[2 marks]**

Answer _____

18 Work out $2\sqrt{20} \times 3\sqrt{5}$ giving your answer as an integer. **[2 marks]**

Answer _____

17

Turn over ►

Solutions

19 Work out $(\sqrt{6})^2$ giving your answer as an integer. **[2 marks]**

Answer _____

20 Work out $(\sqrt{5})^4$ giving your answer as an integer. **[2 marks]**

Answer _____

21 Work out $(2\sqrt{3})^3$ giving your answer in its simplest form. **[2 marks]**

Answer _____

22 Work out $(\sqrt{2} \times \sqrt{3} \times \sqrt{5})^2$ giving your answer as an integer. **[2 marks]**

Answer _____

23 Express $(\sqrt{3})^7$ in the form $a\sqrt{3}$, where a is an integer. **[2 marks]**

Answer _____

Solutions

24 Work out $\sqrt{60} \div \sqrt{3}$ giving your answer in its simplest form. **[2 marks]**

Answer _____

25 Work out $8\sqrt{30} \div 4\sqrt{6}$ giving your answer in its simplest form. **[1 mark]**

Answer _____

26 Simplify fully $\dfrac{18\sqrt{150}}{9\sqrt{3}}$ **[2 marks]**

Answer _____

27 Simplify fully $\dfrac{40\sqrt{40}}{5\sqrt{10}}$ **[2 marks]**

Answer _____

28 Simplify fully $\left(\dfrac{\sqrt{2}}{\sqrt{5}}\right)^2$ **[2 marks]**

Answer _____

19

29 Simplify $\sqrt{11} + \sqrt{11} + \sqrt{11}$ **[1 mark]**

Answer _____

30 Simplify $3\sqrt{5} + 6\sqrt{5}$ **[1 mark]**

Answer _____

31 Simplify $9\sqrt{7} + 3\sqrt{7} - \sqrt{7}$ **[1 mark]**

Answer _____

32 Work out $(\sqrt{2} + 6\sqrt{2} - 2\sqrt{2})^2$ giving your answer as an integer. **[2 marks]**

Answer _____

33 Simplify $4\sqrt{3} + 6\sqrt{2} - \sqrt{3} + 8\sqrt{2}$ **[2 marks]**

Answer _____

Solutions

34 Express $\sqrt{18} + \sqrt{2}$ in the form $a\sqrt{2}$, where a is an integer. **[2 marks]**

Answer _____

35 Express $2\sqrt{3} + \sqrt{75}$ in the form $a\sqrt{3}$, where a is an integer. **[2 marks]**

Answer _____

36 Express $\sqrt{32} + \sqrt{8}$ in the form $a\sqrt{2}$, where a is an integer. **[3 marks]**

Answer _____

37 Express $3\sqrt{500} - \sqrt{20}$ in the form $a\sqrt{5}$, where a is an integer. **[3 marks]**

Answer _____

38 Express $\sqrt{28} + \sqrt{175} - 3\sqrt{7}$ in the form $a\sqrt{7}$, where a is an integer. **[3 marks]**

Answer _____

20

Solutions

39 Ross is doing a surds question.
Ross writes:

$$\sqrt{300} + \sqrt{12} = \sqrt{312}$$
$$= \sqrt{4} \times \sqrt{78}$$
$$= 2 \times \sqrt{78}$$
$$= 2\sqrt{78}$$

Explain the mistake that Ross has made **[1 mark]**

40 Work out $\dfrac{\sqrt{30} \times 5\sqrt{6}}{\sqrt{125} - \sqrt{20}}$ giving your answer as an integer. **[4 marks]**

Answer _____

5

Solutions