GCSE HIGHER · REVISION MAT 4

Surds and exact calculations

1 Work out

$$1\frac{2}{5} + 2\frac{1}{2}$$

2 Simplify

$$\sqrt{72}$$

3 Show that

$$3\sqrt{2} \times 2\sqrt{2} = 12$$

4 Find the exact perimeter of a quarter circle of radius 6 cm.

5 Expand and simplify

$$(2 + \sqrt{3})(1 + \sqrt{3})$$

6 An isosceles right-angled triangle has area 18 cm².

Find the exact length of its hypotenuse.

7 Show that

$$\frac{7}{3 - \sqrt{2}} = 3 + \sqrt{2}$$

8 Write $(2\sqrt{3} - 1)^2 - (\sqrt{3} + 2)^2$ in the form $a + b\sqrt{3}$.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 4

Surds and exact calculations

1 $\frac{14}{10} + \frac{25}{10} = \frac{39}{10}$

$3\frac{9}{10}$

2 $6\sqrt{2}$

3 6×2

$= 12$

4 Arc $= \frac{1}{4} \times 12\pi = 3\pi$

$(3\pi + 12)$ cm

5 $2 + 2\sqrt{3} + \sqrt{3} + 3$

$5 + 3\sqrt{3}$

6 $\frac{1}{2}a^2 = 18 \Rightarrow a = 6$

$\sqrt{72}$

$6\sqrt{2}$ cm

7 $\frac{7(3 + \sqrt{2})}{9 - 2}$

$= 3 + \sqrt{2}$

8 $(13 - 4\sqrt{3}) - (7 + 4\sqrt{3})$

$6 - 8\sqrt{3}$

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