Rationalising denominators

6 questions | 15 marks

Equivalent correct methods earn the corresponding marks.

1. Rationalise $3/\sqrt{2}$. [2 marks]

Multiply numerator and denominator by $\sqrt{2}$.

Answer: $3\sqrt{2}/2$

2. Rationalise $4/\sqrt{8}$. [2 marks]

$4/(2\sqrt{2}) = 2/\sqrt{2} = \sqrt{2}$.

Answer: $\sqrt{2}$

3. Rationalise $1/(2+\sqrt{3})$. [3 marks]

The conjugate product is $4-3=1$.

Answer: $2-\sqrt{3}$

4. Rationalise $3/(\sqrt{5}-1)$. [3 marks]

Multiply by $(\sqrt{5}+1)/(\sqrt{5}+1)$; the denominator becomes $5-1=4$.

Answer: $3(\sqrt{5}+1)/4$

5. Simplify and rationalise $\sqrt{6}/\sqrt{2}$. [2 marks]

Combine the quotient as $\sqrt{6/2} = \sqrt{3}$.

Answer: $\sqrt{3}$

6. A rectangle has area 12 cm^2 and width $\sqrt{3}$ cm. Find its exact length. [3 marks]

Length $= 12/\sqrt{3} = 12\sqrt{3}/3 = 4\sqrt{3}$ cm.

Answer: $4\sqrt{3}$ cm