

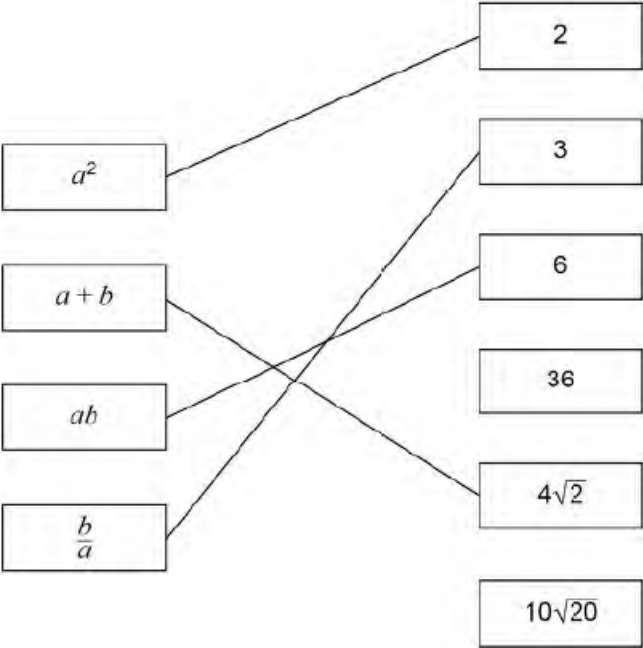
1	90	B1	
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2	Alternative method 1		
	$(\sqrt{18} =) \sqrt{9} \sqrt{2} \text{ or } 3\sqrt{2}$ or $(\sqrt{50} =) \sqrt{25} \sqrt{2} \text{ or } 5\sqrt{2}$	M1	oe simplifies one surd implied by $\frac{28}{5\sqrt{2}}$
	$\frac{28}{\sqrt{50}} \times \frac{\sqrt{50}}{\sqrt{50}} \text{ or } \frac{28\sqrt{50}}{50}$	M1	oe rationalises second term $\frac{28}{5\sqrt{2}} \times \frac{5\sqrt{2}}{5\sqrt{2}} \text{ or } \frac{140\sqrt{2}}{50}$ or $\frac{14\sqrt{2}}{5}$ implies M1M1
	$3\sqrt{2} - \frac{140\sqrt{2}}{50}$ or $\frac{150\sqrt{2} - 140\sqrt{2}}{50} \text{ or } \frac{10\sqrt{2}}{50}$	M1dep	dep on M2 oe both terms rational with a common surd
	$\frac{\sqrt{2}}{5}$ or $a = 2, b = 5$	A1	oe in the form $\frac{\sqrt{a}}{b}$ eg $\frac{\sqrt{50}}{25} \text{ or } \frac{\sqrt{200}}{50}$
The scheme for this question continues on the next page			

2 cont	Alternative method 2		
	$(\sqrt{18} \Rightarrow) \sqrt{9}\sqrt{2} \text{ or } 3\sqrt{2}$ or $(\sqrt{50} \Rightarrow) \sqrt{25}\sqrt{2} \text{ or } 5\sqrt{2}$ or $\frac{\sqrt{18}\sqrt{50}}{\sqrt{50}} \text{ or } \frac{\sqrt{900}}{\sqrt{50}}$	M1	oe simplifies one surd implied by $\frac{28}{5\sqrt{2}}$ or changes first term to match second
	$\frac{\sqrt{900}}{\sqrt{50}} - \frac{28}{\sqrt{50}}$ or $\frac{3\sqrt{2} \times 5\sqrt{2}}{\sqrt{50}} - \frac{28}{\sqrt{50}}$ or $\frac{30-28}{\sqrt{50}} \text{ or } \frac{2}{\sqrt{50}}$	M1dep	oe common denominator
	$\frac{30-28}{\sqrt{50}} \times \frac{\sqrt{50}}{\sqrt{50}} \text{ or } \frac{2\sqrt{50}}{50}$	M1dep	oe rationalisation of a single term
	$\frac{\sqrt{2}}{5}$ or $a = 2, b = 5$	A1	oe in the form $\frac{\sqrt{a}}{b}$ eg $\frac{\sqrt{50}}{25} \text{ or } \frac{\sqrt{200}}{50}$
	Additional Guidance		
Ignore further work after a correct value, eg $\frac{\sqrt{50}}{25} = \sqrt{2}$			M1M1M1A1

3	Alternative method 1		
	$(\sqrt{150} \Rightarrow) \sqrt{25} \sqrt{6}$ or $5\sqrt{6}$ or $(\sqrt{2} \times \sqrt{3} \Rightarrow) \sqrt{6}$	M1	numerator allow $\sqrt{2}\sqrt{3}$ for $\sqrt{6}$ denominator
	$\frac{\sqrt{25}\sqrt{6}-\sqrt{6}}{\sqrt{6}}$ or $\frac{5\sqrt{6}-\sqrt{6}}{\sqrt{6}}$ or $\frac{4\sqrt{6}}{\sqrt{6}}$	M1dep	allow consistent use of $\sqrt{2}\sqrt{3}$ for $\sqrt{6}$
	4 with M1M1 awarded	A1	
	Alternative method 2		
	$\sqrt{6}(\sqrt{25}-1)$ or $\sqrt{6}(5-1)$ or $4\sqrt{6}$ or $(\sqrt{2} \times \sqrt{3} \Rightarrow) \sqrt{6}$	M1	numerator allow $\sqrt{2}\sqrt{3}$ for $\sqrt{6}$ denominator
	$\frac{\sqrt{6}(\sqrt{25}-1)}{\sqrt{6}}$ or $\frac{\sqrt{6}(5-1)}{\sqrt{6}}$	M1dep	allow consistent use of $\sqrt{2}\sqrt{3}$ for $\sqrt{6}$
	4 with M1M1 awarded	A1	
	Alternative method 3		
	$\frac{\sqrt{150}-\sqrt{6}}{\sqrt{2} \times \sqrt{3}} \times \frac{\sqrt{6}}{\sqrt{6}}$	M1	allow $\frac{\sqrt{2}\sqrt{3}}{\sqrt{2}\sqrt{3}}$ for $\frac{\sqrt{6}}{\sqrt{6}}$
	$\frac{\sqrt{900}-6}{6}$	M1dep	oe rationalised
	4 with M1M1 awarded	A1	
	Additional Guidance		
	Condone answer 4 and -6 from use of $\sqrt{25} = \pm 5$		M1M1A1

Q	Answer	Mark	Comments
4	$2\sqrt{5}a$	B1	

Q	Answer	Mark	Comments
5	$a + b \rightarrow 4\sqrt{2}$ $ab \rightarrow 6$ $\frac{b}{a} \rightarrow 3$	B3	B1 each correct match
	Additional Guidance		
			B3
	Two lines from a left-hand box is choice		B0

Q	Answer	Mark	Comment
6	Alternative method 1		
	$\left(\sqrt{2\frac{13}{16}} = \right) \sqrt{\frac{45}{16}}$ or $\frac{\sqrt{45}}{4}$ or $\frac{3\sqrt{5}}{4}$	M1	oe conversion from a mixed number
	$\frac{2}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}}$ or $\frac{2\sqrt{5}}{5}$	M1	oe rationalisation
	$\frac{15\sqrt{5}}{20} - \frac{8\sqrt{5}}{20}$ or $(0.75\sqrt{5} - 0.4\sqrt{5} =) 0.35\sqrt{5}$	M1dep	oe with common surd in numerator and common non-surd denominator do not allow fraction(s) in numerator(s) or denominator dep on M1M1
	$\frac{7\sqrt{5}}{20}$	A1	oe in the form $\frac{a\sqrt{5}}{b}$ eg $\frac{28\sqrt{5}}{80}$
	Alternative method 2		
	$\left(\sqrt{2\frac{13}{16}} = \right) \sqrt{\frac{45}{16}}$ or $\frac{\sqrt{45}}{4}$ or $\frac{3\sqrt{5}}{4}$	M1	oe conversion from a mixed number
	$\frac{\sqrt{45}\sqrt{5}}{4\sqrt{5}} - \frac{8}{4\sqrt{5}}$ or $\frac{15}{4\sqrt{5}} - \frac{8}{4\sqrt{5}}$ or $\frac{7}{4\sqrt{5}}$	M1dep	oe with common denominator do not allow fraction(s) in numerator(s) or denominator
	$\frac{15}{4\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} - \frac{8}{4\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}}$ or $\frac{7}{4\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}}$	M1dep	oe with all denominators rationalised
	$\frac{7\sqrt{5}}{20}$	A1	oe in the form $\frac{a\sqrt{5}}{b}$ eg $\frac{28\sqrt{5}}{80}$