1	**Alternative method 1**		
	Correct method to work out any viable distance, eg $\frac{1}{2} \times \frac{5}{60} \times 102$ or 4.25 or $102 \times \frac{40}{60}$ or 68 or $\frac{1}{2}(102+96) \times \frac{15}{60}$ or $96 \times \frac{15}{60}$ and $\frac{1}{2} \times 6 \times \frac{15}{60}$ or 24 and 0.75 or 24.75 or $\frac{1}{2}\left(\frac{40}{60}+\frac{45}{60}\right) \times 102$ or 72.25	M1	first section second section third section first and second sections
	Correct method to work out all parts of distance, eg $\frac{1}{2} \times \frac{5}{60} \times 102$ or 4.25 and $102 \times \frac{40}{60}$ or 68 and $\frac{1}{2}(102+96) \times \frac{15}{60}$ or 24.75	M1dep	97 scores M1M1
	130 – their whole distance or 130 – 97	M1dep	eg 130 – their 4.25 – their 68 – their 24.75 dep on M2
	33	A1	

1 cont	**Alternative method 2**		
	Correct method to work out 60 × any viable distance, eg $\frac{1}{2} \times 5 \times 102$ or 255 or 102×40 or 4080 or $\frac{1}{2}(102+96) \times 15$ or 96×15 and $\frac{1}{2} \times 6 \times 15$ or 1440 and 45 or 1485 or $\frac{1}{2}(40+45) \times 102$ or 4335	M1	first section second section third section first and second sections
	Correct method to work out 60 × all parts of distance, eg $\frac{1}{2} \times 5 \times 102$ or 255 and 102×40 or 4080 and $\frac{1}{2}(102+96) \times 15$ or 1485	M1dep	5820 implies M1M1
	130 – their whole distance or $130 - \frac{5820}{60}$ or 130 – 97	M1dep	eg $130 - \frac{\text{their } 255 + \text{their } 4080 + \text{their } 1485}{60}$ dep on M2
	33	A1	
	Additional Guidance		
	Accept fractions used as decimals correct to 2 dp or better		

2	**Alternative method 1**		
	16^2 or 256 and 30^2 or 900	M1	oe implied by 1156
	$\sqrt{16^2+30^2}$ or $\sqrt{256+900}$ or $\sqrt{1156}$ or 34	M1dep	oe eg $\sqrt{16^2+30^2-2\times16\times30\times\cos 90}$
	52 × their 34 or 1768	M1dep	oe if M1M0 their 34 can be any value other than 16, 30 or 52 dep on 1st M
	0.5 × 30 × 16 or 240	M1	oe eg 0.5 × 30 × 16 × sin 90
	2008	A1	SC3 2248
	Alternative method 2		
	$\tan^{-1}\frac{16}{30}$ or [28, 28.1] or $\tan^{-1}\frac{30}{16}$ or [61.9, 62]	M1	oe may be on diagram
	$\frac{30}{\cos(\text{their } [28, 28.1])}$ or $\frac{16}{\cos(\text{their } [61.9, 62])}$ or 34	M1dep	oe eg $\frac{16}{\sin(\text{their } [28, 28.1])}$ or $30\cos(\text{their } [28, 28.1]) + 16\cos(\text{their } [61.9, 62])$
	52 × their 34 or 1768	M1dep	oe if M1M0 their 34 can be any value other than 16, 30 or 52 dep on 1st M
	0.5 × 30 × 16 or 240	M1	oe eg 0.5 × 30 × 16 × sin 90
	2008	A1	SC3 2248

2 cont	**Additional Guidance**	
	Up to M4 may be awarded for correct work with no, or incorrect answer, even if this is seen amongst multiple attempts	
	The 4th mark in Alts 1 and 2 is not dependent on any other marks	
	34 or 1768 or 240 may be on the diagram	
	SC3 is for using 30 × 16 for the area of the triangle	
	Ignore units	

Q	Answer	Mark	Comments
3(a)	**Alternative method 1 – horizontal split**		
	$x(x-2)$ and $3(x-5)$	M1	oe may be seen as two areas
	$x^2-2x+3x-15$ (= 75)	M1dep	oe expression with all brackets expanded
	$x^2-2x+3x-15=75$ and $x^2+x-90=0$ or $x^2+x-15=75$ and $x^2+x-90=0$	A1	with full working seen
	Alternative method 2 – vertical split		
	$(x-5)(x+1)$ and $5(x-2)$	M1	oe may be seen as two areas
	$x^2-5x+x-5+5x-10$ (= 75) or $x^2-4x-5+5x-10$ (= 75)	M1dep	oe expression with all brackets expanded
	$x^2-5x+x-5+5x-10=75$ and $x^2+x-90=0$ or $x^2-4x-5+5x-10=75$ and $x^2+x-90=0$	A1	with full working seen
	Alternative method 3 – large rectangle subtract 3 × 5		
	$x(x+1)$ and 3×5	M1	oe may be seen as two areas
	x^2+x-15 (= 75)	M1dep	oe expression with brackets expanded and 3×5 evaluated
	$x^2+x-15=75$ and $x^2+x-90=0$	A1	with full working seen

Q	Answer	Mark	Comments
3(a) cont	**Alternative method 4 – split into three areas**		
	$3(x-5)$ and $(x-2)(x-5)$ and $5(x-2)$	M1	oe may be seen as three areas
	$3x-15+x^2-2x-5x+10+5x-10$ (= 75) or $3x-15+x^2-7x+10+5x-10$ (= 75)	M1dep	oe expression with all brackets expanded
	$3x-15+x^2-2x-5x+10+5x-10=75$ and $x^2+x-90=0$ or $3x-15+x^2-7x+10+5x-10=75$ and $x^2+x-90=0$	A1	with full working seen
	Additional Guidance		
	Ignore attempts to solve the equation or substituting values for x		
	Condone missing end bracket for M1		
	Condone missing pairs of brackets if recovered eg $3\times x-5$ recovered to $3x-15$		

Q	Answer	Mark	Comments
3(b)	$(x-9)(x+10)$ (= 0) and answer 9	B2	B1 $(x-9)(x+10)$ (= 0) and answer 9 and –10 SC1 $(x+9)(x-10)$ (= 0) and answer 10
	Additional Guidance		
	If no response is seen, check part (a) for any creditworthy work		
	Answer 9 with no working can be awarded up to B2 from correct factorising seen in part (a)		
	Answer 9 from quadratic formula or completing the square		B1
	Answer 9 and –10 from quadratic formula or completing the square		B0
	Answer from trial and improvement only		B0

Q	Answer	Mark	Comments
4	$\frac{1}{2} \times (14 + 20) \times 11$ or 187	M1	oe any correct method to find the area of the trapezium
	$\frac{1}{2} \times 10 \times 7$ or 35	M1	oe eg $\frac{1}{2} \times 10 \times 7 \times \sin 90$
	222	A1	
	Additional Guidance		
	Up to M2 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	Ignore Pythagoras' theorem, trigonometry or perimeter calculations		
	$14 \times 11 + \frac{1}{2} \times 6 \times 11$	M1	
	Missing brackets must be recovered eg1 $\frac{1}{2} \times 20 + 14 \times 11$ and 187 eg2 $\frac{1}{2} \times 20 + 14 \times 11$	 M1 M0	
	$20 \times 11 = 220$	M0M0A0	