Question	Answer	Marks	Partial Marks
10(a)	$\frac{\sin\theta}{\sqrt{\cot^2\theta}}+\frac{1}{\sqrt{\sec^2\theta}}$	**B1**	for correct use of the trigonometry identity $\text{cosec}^2\theta-1=\cot^2\theta$
	$\sin\theta\tan\theta+\cos\theta$ oe	**B1**	
	$\sin\theta\times\frac{\sin\theta}{\cos\theta}+\cos\theta$	**B1**	
	$\frac{\sin^2\theta+\cos^2\theta}{\cos\theta}=\frac{1}{\cos\theta}=\sec\theta$	**B1**	**Dep** on all 3 previous marks Last mark is not available if persistent missing of θ
	Alternative		
	$\frac{\sin\theta}{\sqrt{\cot^2\theta}}+\frac{1}{\sqrt{\sec^2\theta}}$	**(B1)**	for correct use of the trigonometry identity $\text{cosec}^2\theta-1=\cot^2\theta$
	$\frac{\sec\theta\sin\theta+\cot\theta}{\cot\theta\sec\theta}$	**(B1)**	
	$\frac{\frac{\sin\theta}{\cos\theta}+\frac{\cos\theta}{\sin\theta}}{\frac{\cos\theta}{\sin\theta}\times\frac{1}{\cos\theta}}$	**(B1)**	
	$\frac{\frac{\sin^2\theta+\cos^2\theta}{\cos\theta\sin\theta}}{\frac{1}{\sin\theta}}$ leading to $\frac{1}{\cos\theta}$	**(B1)**	**Dep** on all 3 previous marks Last mark is not available if persistent missing θ

Question	Answer	Marks	Partial Marks
10(b)	$\cos x = \frac{1}{\alpha}$	**B1**	could be implied by $\frac{1}{\alpha^2} = 1 - \sin^2 x$
	$\sin^2 x + \left(\frac{1}{\alpha}\right)^2 = 1$ oe OR [opposite ^{2}=] $\alpha^2 - 1$ soi and use of $\sin x = \frac{\text{opposite}}{\text{hypotenuse}}$ at some stage leading to $\sin x = [\pm]\sqrt{1 - \frac{1}{\alpha^2}}$ oe	**M1**	
	$\sin x = -\sqrt{1 - \frac{1}{\alpha^2}}$ oe	**A1**	
11(a)	$10 - 2d$ and $10 - d$	**B2**	**B1** for either ignore labels
11(b)	Squares each term and forms a sum e.g. $100 - 40d + 4d^2 + 100 - 20d + d^2 + 100$ $[= 140]$ or $100 - 40d + 4d^2 + 100 - 20d + d^2 [= 40]$ $a^2 + \frac{a^2 + 20a + 100}{4} = 40$ oe	**M1**	**FT** from *their* two terms in **(a),** must be both 2 terms expression in terms of d only or Correct expressions in terms of a only, must see substitution and expansion
	Correct equation in solvable form $5d^2 - 60d + 160 = 0$ oe $5a^2 + 20a - 60 = 0$	**A1**	
	Factorises *their* 3-term quadratic expression or solves *their* 3-term quadratic equation	**M1**	
	$d = 8$ $d = 4$	**A1**	
	Finds the first term when $d = 4$: $a = 2$	**M1**	**FT** $10 - 2$(*their d*)
	$[S_{200} =] \frac{200}{2}\{4 + 199 \times 4\}$ oe	**M1**	**FT** *their a* and *their d*
	80 000	**A1**	

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