Incorrect working giving the radius as 16 cm gains M0A0					
Question	**Working**	**Answer**	**Mark**	**Notes**	
22	$7 \times 4 = 2(2r - 2)$ or $7 \times 4 = 2(d - 2)$		6	M1	Or a correct equation in r eg $5.5^2 - 1.5^2 = 4r - 4$
	$r = 8$ **or** $d = 16$			A1	
	$5 \times (5 + 4 + 7) = x \times (2 \times$ "8" $+ x)$			M1	Accept $5 \times 16 = x(2r + x)$
	$x^2 + 16x - 80\ (= 0)$			A1	
	$(x - 4)(x + 20)\ (= 0)$ $\frac{-16 \pm \sqrt{16^2 - 4 \times 1 \times (-80)}}{2 \times 1}$ **or** $\frac{-16 \pm \sqrt{576}}{2}$			M1	Correct factors or evidence of correct use of quadratic formula.
		4		A1	dep on first 2 method marks
					Total 6 marks

23	$\frac{48}{2}(2a + (48-1)d)$ **or** $\frac{36}{2}(2a + (36-1)d)$ oe		5	M1	For a correct expression for the first 48 terms or the first 36 terms
	$\frac{48}{2}(2a + (48-1)d) = 4 \times \frac{36}{2}(2a + (36-1)d)$ oe			M1	For a correct equation.
	$96a + 1392d = 0$ oe eg $4a + 58d = 0$, $2a + 29d = 0$ or $a = -14.5d$ etc			M1	
	$\frac{30}{2}(2a + (30-1)d)$			M1	Indep Allow substitution of any 'found' values of a and d
		0		A1	
					Total 5 marks

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