Question	Answer	Marks	Guidance
6(a)(iii)	[Starts with 6 or 8]: 192	**B1**	
	[Starts with 9]: 72	**B1**	
	Total = 264	**B1**	
	Alternative [Ends with 9]:48	**(B1)**	
	[Ends with 1,3 or 5]:216	**(B1)**	
	Total = 264	**(B1)**	
6(b)	$\frac{45n!}{(n-4)!4!} = \frac{(n+1)(n+1)!}{((n+1)-5)!5!}$	**B1**	
	$45 = \frac{(n+1)^2}{5}$ leading to $15 = n+1$ or $n^2+2n-224=0$	**M2**	**M1** for 15 **M1** for $n+1$ OR **M1** for $n^2+2n-224=0$ oe **M1** for $(n-14)(n+16)=0$
	$n=14$ only	**A1**	
7(a)(i)	110 (m)	**B1**	
7(a)(ii)		**B2**	**B1** for a line joining $(0,5)$ and $(10,5)$ **B1** for a line joining $(10,-2)$ and $(40,-2)$
7(b)(i)	$v = (2t+4)^{\frac{1}{2}}(+c)$	**M1**	For $k(2t+4)^{\frac{1}{2}}$
	$9 = 4 + c$	**M1**	**Dep** for attempt to find c using $v=9$ and $t=6$ in *their* v
	$(2t+4)^{\frac{1}{2}} + 5$	**A1**	

Question	Answer	Marks	Guidance
7(b)(ii)	$s=\frac{1}{3}(2t+4)^{\frac{3}{2}} \quad (+5t+d)$	**M1**	For $k(2t+4)^{\frac{3}{2}}$
	$\frac{1}{3}=\frac{64}{3}+30+d$	**M1**	**Dep** for attempt to find d using $s=\frac{1}{3}$ and $t=6$ in *their s*
	$\frac{1}{3}(2t+4)^{\frac{3}{2}}+5t-51$	**A1**	
8(a)	$x=\frac{\sqrt{3}+1}{2-\sqrt{3}}\times\frac{2+\sqrt{3}}{2+\sqrt{3}}$ leading to $x=\frac{5+3\sqrt{3}}{1}$	**M1**	For attempt to rationalise and simplify showing all working
	$x=5+3\sqrt{3}$	**A1**	
	Either: Using $x=5+3\sqrt{3}$ $y=\left(2-\sqrt{3}\right)\left(52+30\sqrt{3}\right)+5+3\sqrt{3}-1$ $=14+8\sqrt{3}+4+3\sqrt{3}$ Or: Using $x=\frac{\sqrt{3}+1}{2-\sqrt{3}}$ $y=\left(2-\sqrt{3}\right)\frac{\left(\sqrt{3}+1\right)^2}{\left(2-\sqrt{3}\right)^2}+\frac{\sqrt{3}+1}{2-\sqrt{3}}-1$ $=\frac{4+2\sqrt{3}+\sqrt{3}+1-2+\sqrt{3}}{2-\sqrt{3}}$ $=\frac{\left(4\sqrt{3}+3\right)}{2-\sqrt{3}}\times\frac{\left(2+\sqrt{3}\right)}{\left(2+\sqrt{3}\right)}$ $=\frac{8\sqrt{3}+6+12+3\sqrt{3}}{1}$	**M1**	For complete method, showing all steps. Allow one slip in arithmetic
	$11\sqrt{3}+18$	**2**	**A1** for 18 **A1** for $11\sqrt{3}$