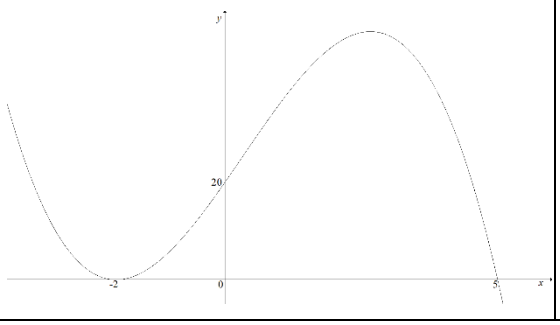
Question	Answer	Marks	Guidance
1	$kx^2+2x+3k-1\ \ [=0]$	**2**	**M1** for attempt to equate equations of the line and curve, re-arrange and equate to zero. Allow one sign error.
	$4=4k\times\ their(3k-1)$ oe	**M1**	**Dep** for attempt to use the discriminant of *their* quadratic equation and solve to obtain *k*.
	$k=\frac{1\pm\sqrt{13}}{6}$ isw	**A1**	
	Alternative method		
	$kx^2+2x+3k-1=0$	**2**	**M1** for attempt to equate equations of the line and curve, re-arrange and equate to zero. Allow one sign error.
	Grad of straight line = -1 Gradient function of curve = $2kx+1$ Substitution to obtain $3k^2-k-1=0$ oe with attempt to solve to obtain *k*	**M1**	**Dep**
	$k=\frac{1\pm\sqrt{13}}{6}$ isw	**A1**	
2(a)	$\frac{dy}{dx}=2(x+2)(5-x)+(-1)(x+2)^2$ or $y=-x^3+x^2+16x+20$ $\frac{dy}{dx}=-3x^2+2x+16$	**2**	**M1** for attempt at differentiation of a product, or expansion and then differentiation. **A1** for all correct
	$(x+2)(8-3x)=0$	**M1**	**Dep** for attempt to solve *their* quadratic $\frac{dy}{dx}=0$
	$x=-2,\ \frac{8}{3}$	**A1**	For both.
2(b)		**3**	**B1** for correctly shaped curve, with maximum point in the first quadrant **B1** for $(5,\ 0)$ and a stationary point at $(-2,\ 0)$, must have a cubic graph. **B1** for $(0,\ 20)$, must have a cubic graph