23	$\left(\frac{dy}{dx} =\right) 2x-8$ or $(x-4)^2$….. or $\left(x =\right)\frac{-1+9}{2}$		5	M1 for using differentiation **or** completing the square **or** by symmetry
	$x = 4$ or (4, –25) or (4, …) or $\frac{p+q}{2} = 4$ oe			M1
	$q = -3$ **or** $p = 11$			A1
	$(k =)(-3)^2 - 8(-3) - 9$ **or** $(k =)(11)^2 - 8(11) - 9$			M1
	Working required	24		A1 dep on M2
				Total 5 marks

23	$p^2 - 8p - 9 = k$ **and** $q^2 - 8q - 9 = k$ or $(p - 9)(p + 1) = k$ **and** $(q - 9)(q + 1) = k$		5	M1
ALT 1	$(q+14)^2 - 8(q+14) - 9 = q^2 - 8q - 9$ **or** $(p-14)^2 - 8(p-14) - 9 = p^2 - 8p - 9$ **or** $(q + 14 - 9)(q + 14 + 1) = (q - 9)(q + 1)$ **or** $(p - 9)(p + 1) = (p - 14 - 9)(p - 14 + 1)$ oe			M1 for a correct equation in one variable
	$q = -3$ **or** $p = 11$			A1
	$(k =)(-3)^2 - 8(-3) - 9$ **or** $(k =)(11)^2 - 8(11) - 9$			M1
	Working required	24		A1 dep on M2
				Total 5 marks

23	$(q+14)^2-8(q+14)-9(=k)$ **or** $(p-14)^2-8(p-14)-9(=k)$		5	M1
ALT 2	$(q+14)^2-8(q+14)-9=q^2-8q-9$ **or** $(p-14)^2-8(p-14)-9=p^2-8p-9$			M1 for a correct equation in one variable
	$q=-3$ **or** $p=11$			A1
	$(k=)(-3)^2-8(-3)-9$ **or** $(k=)(11)^2-8(11)-9$			M1
	Working required	24		A1 dep on M2
				Total 5 marks

23	$y=(x-4)^2-16-9$ oe or $k=(x-4)^2-25$ oe or $x^2-8x-9-k=0$		5	M1
ALT 3	$(x=)4\pm\sqrt{k+25}$ or $(x=)\dfrac{--8\pm\sqrt{(-8)^2-(4\times1\times(-9-k))}}{2\times1}$ oe or $(x=)\dfrac{8\pm\sqrt{100+4k}}{2}$ oe			M1
	$4+\sqrt{k+25}-\left(4-\sqrt{k+25}\right)=14$ oe or $\dfrac{8+\sqrt{100+4k}}{2}-\left(\dfrac{8-\sqrt{100+4k}}{2}\right)=14$ oe			A1 for a correct equation in one variable
	$25+k=\left(\dfrac{14}{2}\right)^2$ oe			M1
	Working required	24		A1 dep on M2
				Total 5 marks