Question number	Scheme	Marks
5 a	$\alpha+\beta=-\dfrac{b}{a}=\dfrac{-(6+2p)}{2}=-3-p$	B1
	$\alpha\beta=\dfrac{c}{a}=\dfrac{2p}{2}=p$	B1 (2)
b	$(\alpha-\beta)^2=\alpha^2+\beta^2-2\alpha\beta$	M1
	$=(\alpha+\beta)^2-4\alpha\beta$	M1
	$=(-3-p)^2-4p$	M1
	$=9+2p+p^2$ *	A1 cso (4)
c	$(\alpha-\beta)=3$ implies $(\alpha-\beta)^2=9$	B1
	So $9=9+2p+p^2\Rightarrow 0=2p+p^2\Rightarrow 0=p(2+p)$	M1
	$p=0$ or $p=-2$	A1 (3)
		Total 9 marks

Part	Mark	Notes
(a)	**B1**	For the sum $\alpha+\beta=-3-p$ Need not be simplified. E.g., accept $\dfrac{-(6+2p)}{2}$
	B1	For the product $\alpha\beta=p$ $\left(\text{Accept } \dfrac{2p}{2}\right)$
(b)	**M1**	For the correct algebra on $(\alpha-\beta)^2$ $(\alpha-\beta)^2=\alpha^2+\beta^2-2\alpha\beta$ Accept un-simplified and terms in any order
	M1	For the **correct** algebra on $(\alpha-\beta)^2$ using $(\alpha+\beta)^2$ $(\alpha-\beta)^2=(\alpha+\beta)^2-4\alpha\beta$ Note: $(\alpha+\beta)^2=9+6p+p^2$ which you may see substituted in without seeing the algebra
	M1	For substituting in their sum and product from part (a) $(\alpha-\beta)^2=(-3-p)^2-4p$
	A1 cso	For obtaining the given result $(\alpha-\beta)^2=9+2p+p^2$ Note: condone absence of seeing the LHS. **Note**: **This is a given result.** There must be **no errors or omissions** (including in algebra) in their work for this mark
(c)	**B1**	For $(\alpha-\beta)^2=9$
	M1	For setting the given answer = 9 $9+2p+p^2=9\Rightarrow 2p+p^2=0\Rightarrow p=\ldots$ Two values.
	A1	For $p=0$ or $p=-2$