

Question	Scheme	Marks	AOs
2	Using $z = x + yi$ and $z^* = x - yi$ $(x + yi)(x - yi) + 3i(x + yi) = p + 9i$ $\Rightarrow x^2 + y^2 + 3xi - 3y = p + 9i$	M1	3.1a
	$x = 3$	B1	1.1b
	Equate real parts $3^2 + y^2 - 3y = p$	M1	1.1b
	Complete method to find the value of $y$	M1	3.1a
	$z = 3 + \frac{3}{2}i$	A1	2.2a
		(5)	

(5 marks)

**Notes:**

**M1:** Substitutes  $z = x + yi$  and  $z^* = x - yi$  into the equation, or vice versa.

**B1:** Equate imaginary parts  $3x = 9 \Rightarrow x = 3$

**M1:** Equating real parts to get a 3TQ in  $y$ . May be unsimplified

**M1:** Any valid method to obtain a value for  $y$  e.g.  $-\frac{b}{2a}$  or complete the square or discriminant = 0

(You may see  $p = \frac{27}{4}$ )

**A1:** Correct complex number