

Q	Marking Instructions	AO	Marks	Typical Solution
7	Uses gradient or equation of $AB$ or vectors or proportionate division to find $a$ PI by obtaining $a = -2$	3.1a	M1	Gradient $(2, 4)$ to $B = \frac{6-4}{10-2} = \frac{1}{4}$
	Obtains $a = -2$	1.1b	A1	$\frac{6-3}{10-a} = \frac{1}{4}$
	Finds midpoint of $AB$ PI by either coordinate being correct NB Knowledge of value of $a$ is not required for this mark	1.1a	M1	So $a = -2$ Midpoint = $\left(\frac{a+10}{2}, \frac{3+6}{2}\right)$ = $(4, 4.5)$ $c = 4, d = 4.5$
	Deduces $c = 4$ and $d = 4.5$	2.2a	A1	Radius <sup>2</sup> = $6^2 + 1.5^2 = 38.25$
	Uses an appropriate distance formula to find length of radius or radius squared NB Must be fully numerical PI by use of 'their' $(10 - c)^2 + (6 - d)^2$ or 38.25 seen anywhere or $\frac{1}{2}\sqrt{(10 - a)^2 + 3^2}$ for 'their' $a$	1.1a	M1	$e = 38.25$
	Deduces correct value of $e$ Accept 38.25 or $\frac{153}{4}$ or $38\frac{1}{4}$ OE CAO Do not ISW if $e$ is square rooted or squared	2.2a	A1	
<b>Total</b>			<b>6</b>	