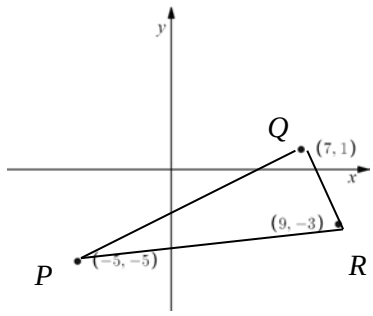
Question	Scheme	Marks	AOs
6.			
6(a)	Attempts gradient $PQ = \frac{1--5}{7--5}$ **AND** gradient $QR = \frac{1--3}{7-9}$	M1	3.1a
	Attempts gradient $PQ \times$ gradient $QR = \frac{1}{2} \times \frac{-2}{1}$	dM1	1.1b
	States gradient $PQ \times$ gradient $QR = -1$, hence angle $PQR = 90°$ *	A1*	2.4
		(3)	
(b)	Deduces that centre of circle is $(2, -4)$	B1	2.2a
	Correct method for finding radius, radius^2, diameter or diameter^2 E.g. $\sqrt{(9--5)^2 + (-3--5)^2} = \sqrt{200}$	M1	1.1b
	Correct equation for C E.g. $(x-2)^2 + (y+4)^2 = 50$	A1	1.1b
		(3)	
			(6 marks)

Notes:

(a)

M1: Selects a valid method that will enable the problem to be solved. See scheme.

It must be an attempt at $\frac{\delta y}{\delta x}$ but condone slips

Also allow an attempt at finding the three lengths PQ, QR and PR or the lengths^2

Look for "a difference in coordinates" and "squaring" but condone slips

dM1: Correct attempt at proof. Attempts to multiply the gradients or similar

Also allow and attempt at finding $PQ^2 + QR^2$ and comparing it to PR^2

A1*: Full explanation with correct reason. All calculations must be correct. Condone a ✓ for conclusion

(b)

B1: Deduces that *PR* is the diameter of the circle thus giving the midpoint $(2,-4)$ as the centre of *C*. May be implied from equation of circle

M1: Correct method for finding radius, radius^2, diameter or diameter^2

E.g. Finds the distance^2 between their $(2,-4)$ and one of the given points

A1: $(x-2)^2+(y+4)^2=50$ o.e.