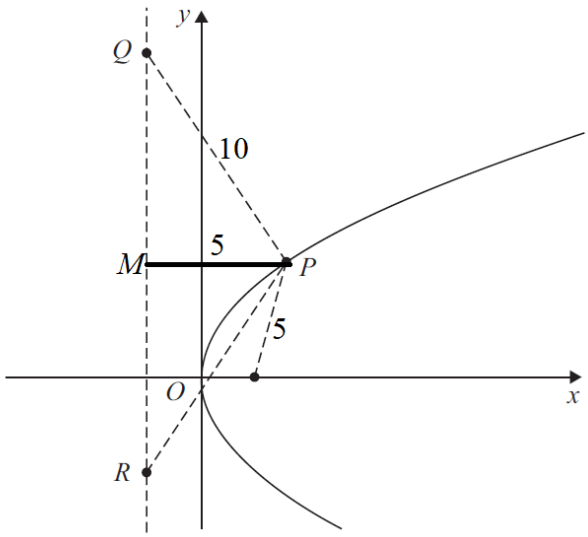
Question Number	Scheme	Notes	Marks
9	Let M be point where perpendicular to directrix from P meets the directrix, then $PM = 5$	States, uses or implies the horizontal distance from P to the directrix is 5. If indicated on Figure 1 or on their own diagram it must be clearly the horizontal distance from P to the directrix. Could be implied by a correct QM or QR. Do not be concerned about any preceding algebra. There is no credit for just forming expressions/equations in e.g., a and/or t until a numerical distance is found.	B1
	$QM = \sqrt{10^2 - "5"^2}$ $(= \sqrt{75} = 5\sqrt{3} \approx 8.66...)$ May see: $QM = 10\sin\frac{\pi}{3}, 5\tan\frac{\pi}{3}, 10\cos\frac{\pi}{6}, \frac{5}{\tan\frac{\pi}{6}}$ $QM = 10\sin 60^\circ, 5\tan 60^\circ, 10\cos 30^\circ, \frac{5}{\tan 30^\circ}$	Obtains a correct numerical expression for QM (not QM^2) with their $PM = k$ where $0 < k < 10$ Pythagoras must be fully correctly applied. Implied by QR. This mark is not available for arbitrarily choosing a value for an angle but apply BOD and potentially full marks if a correct angle is used without working.	M1
	$QR = 2\times\sqrt{10^2 - "5"^2}$ $(= 2\times 5\sqrt{3} \approx 17.3...)$ May see: $QR = \sqrt{10^2 + 10^2 - 2\times 10\times 10\times\cos\frac{2\pi}{3}}$	A correct numerical expression for QR (not QR^2) with their $PM = k$ where $0 < k < 10$ **Previous mark required.**	**d**M1
	$\{QR =\} 10\sqrt{3}$	Correct answer. Allow any exact equivalent e.g., $2\sqrt{75}$, $\sqrt{300}$	A1
	Correct answer only or correct answer following no or minimal work scores 4/4 If trigonometry is used the scheme applies as above so all work must be correct for their k where $0 < k < 10$ but allow premature rounding.		
			(4)
			Total 4



Correct angles: $\angle MPQ = \angle MPR = \frac{\pi}{3} = 60^\circ$, $\angle MQP = \angle MRP = \frac{\pi}{6} = 30^\circ$, $\angle QPR = \frac{2\pi}{3} = 120^\circ$

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