

解:

(1)

由题意设 $C: y^2 = 2px$, $\odot M: (x-2)^2 + y^2 = r^2$

PQ 关于 x 轴对称, 且 $\angle POQ = \frac{\pi}{2}$

则: $\triangle POQ$ 为等腰直角三角形, 则 $P(1, 1), Q(1, -1)$

则: $1^2 = 2p \Rightarrow p = \frac{1}{2}, C: y^2 = x$

$\odot M$ 与 l 相切, 则 $r = 1$ $\odot M: (x-2)^2 + y^2 = 1$

(2)

设 $A_1(y_1^2, y_1), A_2(y_2^2, y_2), A_3(y_3^2, y_3)$