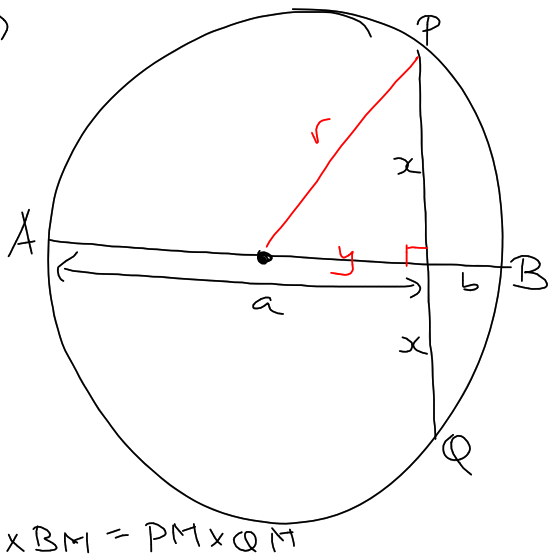
6d)



b)

$AM \times BM = PM \times QM$

$ab = x \times x$

$x^2 = ab$

$x = \sqrt{ab}$

$\left(\frac{a+b}{2}\right) \geq \sqrt{ab}$

$r^2 = x^2 + y^2$

$\therefore r^2 \geq x^2$

$r \geq x$

$\frac{1}{2}(a+b) \geq \sqrt{ab}$.