Distance between A & (d) is the distance between pts A & H.

So $AH = \sqrt{(x_H - x_A)^2 + (y_H - y_A)^2}$

$= \sqrt{9 + 1}$

$AH = \sqrt{10}$ units of length

Area of $\Delta ABC = \frac{\text{Base} \times \text{height}}{2} = \frac{BC \times AH}{2}$

But $BC = \sqrt{(x_C - x_B)^2 + (y_C - y_B)^2}$

$= \sqrt{1+9}$

$BC = \sqrt{10}$ units of length

So, Area $= \frac{\sqrt{10} \times \sqrt{10}}{2} = \frac{10}{2} = 5$ units square.

c). M is symmetric of A w.r.t (BC) (Given)
then, (BC) is perp. bisector of [AM]
hence, H is midpt of [AM]

So, $x_H = \frac{x_A + x_M}{2}$ $\quad y_H = \frac{y_A + y_M}{2}$

$-3 = \frac{0 + x_M}{2}$. $\quad -3 = \frac{-4 + y_M}{2}$.

$\boxed{x_M = -6}$ $\quad \boxed{y_M = -2}$

Thus, M $(-6, -2)$.

3) For E to be on $(\Omega)$
then $AE = AH = r$
Now, $AE = \sqrt{(x_E - x_A)^2 + (y_E - y_A)^2} = \sqrt{9+1} = \sqrt{10}$
Thus E belongs to $(\Omega)$.