$$\Rightarrow 2 + 3sin\Theta = 0$$

$$\Rightarrow tan\Theta = \frac{\sqrt{5}}{2}$$

$$2a = \left|BB'\right| = 8 \Rightarrow a = 4,$$

$$c = ae = 6 \qquad b = \sqrt{36 - 16} = 2\sqrt{5}$$

$$|MH| = a/e = 8/3, \qquad |MF| = ae = 6$$

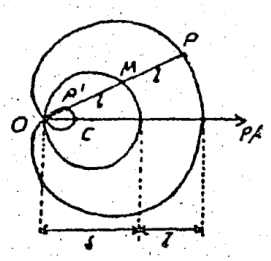
The following two subjects (limoçons of PASCAL and curves of CASSINI) are given in some detail, but for the reader not interested in the details, their equations and shape of the curves may be important.

Limoçons of PASCAL

These curves are defined as follows:

Consider a circle (center at C) of diameter δ and a fixed point 0 on it, and consider a line through the fixed point 0 meeting the circle again at a point M.

On this line lay-off segments (MP), (MP') of constant length 2.



When the point M describes the circle, the points P describe a closed curve called a *limoçons of PASCAL* or simply a *limoçons*.

To obtain the polar equation of this limoçons, we choose the fixed point 0 as pole and the line OC as polar axis.

The equation of the locus of P(Θ, r) is

(1) $$r = l + \delta cos\theta$$

while that of P'(Θ, r) is

(1') $$r = -l + \delta cos\theta$$

Since (1') can be obtained from (1) by changing θ to $\theta + \pi$ and r