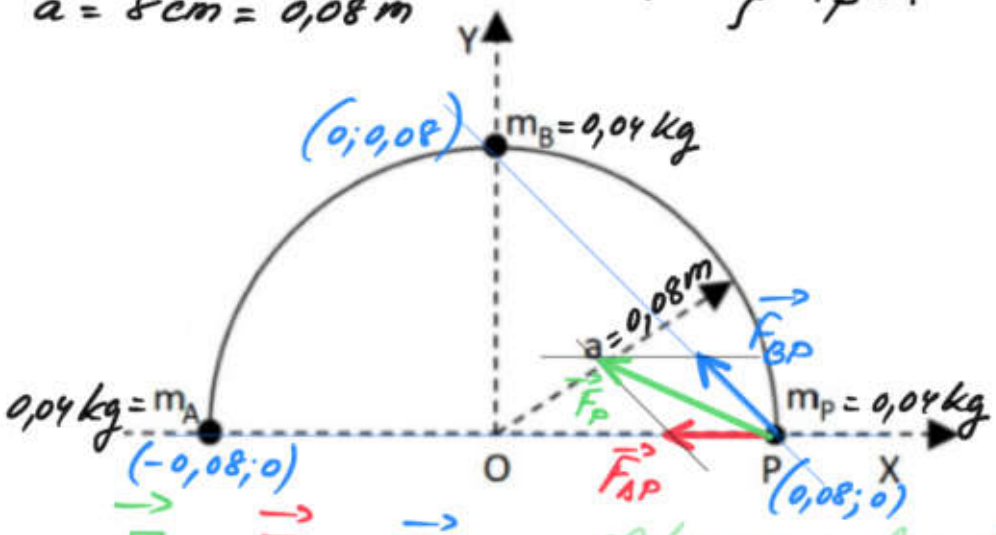
EJERCICIO F2BE3210:

"achimagec.com"

$m_A = m_B = m_P = 40\,g = 0'040\,kg$
$a = 8\,cm = 0{,}08\,m$
$\}\ \vec{F}_P = ?$



$$\vec{F}_P = \vec{F}_{AP} + \vec{F}_{BP}$$

Notar como las fuerzas son atractivas (gravitatorias)

$$\vec{F}_{AP} = -G\frac{m_A m_P}{r_{AP}^2}\cdot\frac{\vec{r}_{AP}}{r_{AP}} = \dots$$

Utilizaremos estrategia vectorial "pura"

$$\vec{r}_{AP} = (P)-(A) = (0{,}08;0)-(-0{,}08;0) = (0{,}16;0) = 0{,}16\,\vec{i}\ (m)$$
$$|\vec{r}_{AP}| = 0{,}16\ m \qquad \text{VECTOR DE POSICIÓN } \vec{AP}$$

$$\dots = \vec{F}_{AP} = -6{,}67\cdot10^{-11}\frac{0{,}04\cdot0{,}04}{0{,}16^2}\frac{0{,}16\,\vec{i}}{0{,}16} = \underline{-4{,}17\cdot10^{-12}\,\vec{i}\ (N)}$$

$$\vec{F}_{BP} = -G\frac{m_B\cdot m_P}{r_{BP}^2}\frac{\vec{r}_{BP}}{r_{BP}} = \dots$$

$$\vec{r}_{BP} = (P)-(B) = (0{,}08;0)-(0;0{,}08) = 0{,}08\,\vec{i} - 0{,}08\,\vec{j}\ (m)$$
$$|\vec{r}_{BP}| = \sqrt{0{,}08^2+(-0{,}08)^2} = 0{,}113\ m \qquad \text{VECTOR DE POSICIÓN } \vec{BP}$$

$$\dots = \vec{F}_{BP} = -6{,}67\cdot10^{-11}\frac{0{,}04^2(0{,}08\,\vec{i}-0{,}08\,\vec{j})}{0{,}113^2\ \ 0.113} = -5{,}92\cdot10^{-12}\,\vec{i} + 5{,}92\cdot10^{-12}\,\vec{j}\ (N)$$

$$\vec{F}_P = \vec{F}_{AP} + \vec{F}_{BP} = -1{,}01\cdot10^{-11}\,\vec{i} + 5{,}92\cdot10^{-12}\,\vec{j}\ (N)$$