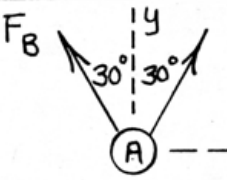
1/6



$r = 0.050$ m for all spheres

$$F_B = \frac{G m_A m_B}{d_{AB}^2} = \frac{G\left(\rho_A \frac{4}{3}\pi r^3\right)\left(\rho_B \frac{4}{3}\pi r^3\right)}{d_{AB}^2}$$

$$= \frac{6.673(10^{-11})\left[\frac{4}{3}\pi (0.050)^3\right]^2 (8910)(2690)}{1^2}$$

$$= 4.38(10^{-10}) \text{ N}$$

$$F_C = \frac{G m_A m_C}{d_{AC}^2} = \frac{G\left[\frac{4}{3}\pi r^3\right]^2 \rho_A \rho_C}{d_{AC}^2}$$

$$= \frac{6.673(10^{-11})\left[\frac{4}{3}\pi (0.050)^3\right]^2 (8910)(7210)}{1^2}$$

$$= 1.175(10^{-9}) \text{ N}$$

$$\underline{R} = \underline{F}_B + \underline{F}_C = 4.38(10^{-10})\left[-\sin 30^\circ \underline{i} + \cos 30^\circ \underline{j}\right] + 1.175(10^{-9})\left[\sin 30^\circ \underline{i} + \cos 30^\circ \underline{j}\right]$$

$$\underline{R} = \left(3.68\underline{i} + 13.98\underline{j}\right)10^{-10} \text{ N}$$