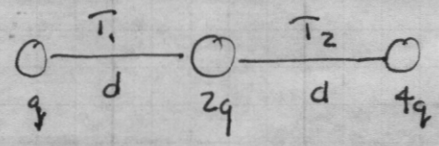
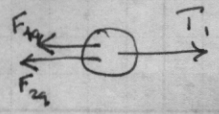
64) GIVEN:



FIND: T_1 & T_2

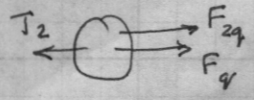
$+q$



$$T_1 - \frac{kq(2q)}{d^2} - \frac{kq(4q)}{(2d)^2} = 0$$

$$T_1 = \frac{2kq^2}{d^2} + \frac{kq^2}{d^2} = \frac{3kq^2}{d^2}$$

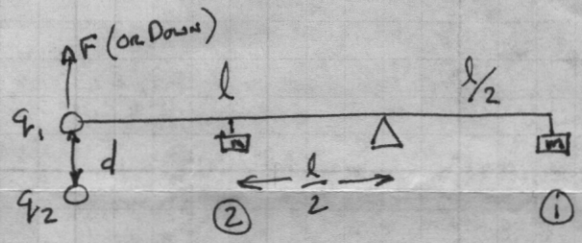
$+4q$



$$\frac{k(2q)(4q)}{d^2} + \frac{k(q)(4q)}{(2d)^2} - T_2 = 0$$

$$T_2 = \frac{8kq^2}{d^2} + \frac{kq^2}{d^2} = \frac{9kq^2}{d^2}$$

69) GIVEN:



SEE SSM

$$F = \frac{kq_1q_2}{d^2} \qquad \tau = lF = \frac{lkq_1q_2}{d^2}$$

IN POSITION 1 NEED FORCE DOWN $\Rightarrow$ $q_2 = (-)$ (OPPOSITE q_1)

$$-\frac{\cancel{l}kq_1q_2}{d^2} + mg\frac{\cancel{l}}{2} = 0$$

$$m = \frac{2kq_1q_2}{gd^2}$$

IN POSITION 2 NEE FORCE UP $\Rightarrow$ $q_2 = (+)$ (SAME AS q_1)

$$\frac{\cancel{l}kq_1q_2}{d^2} - mg\frac{\cancel{l}}{2} = 0$$

$$q_2 = \frac{mgd^2}{2kq_1}$$