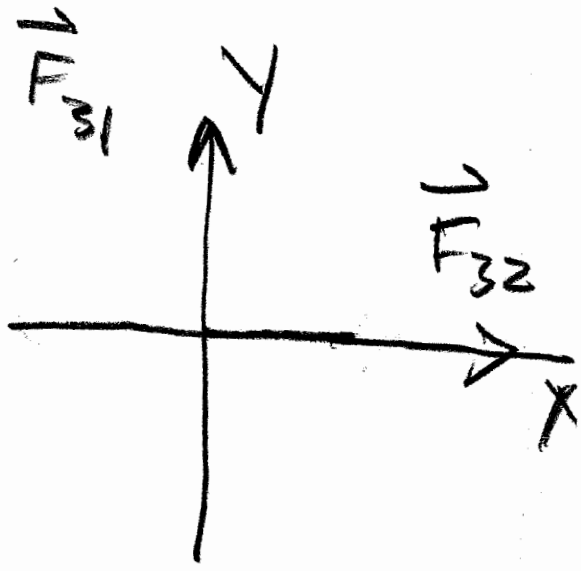
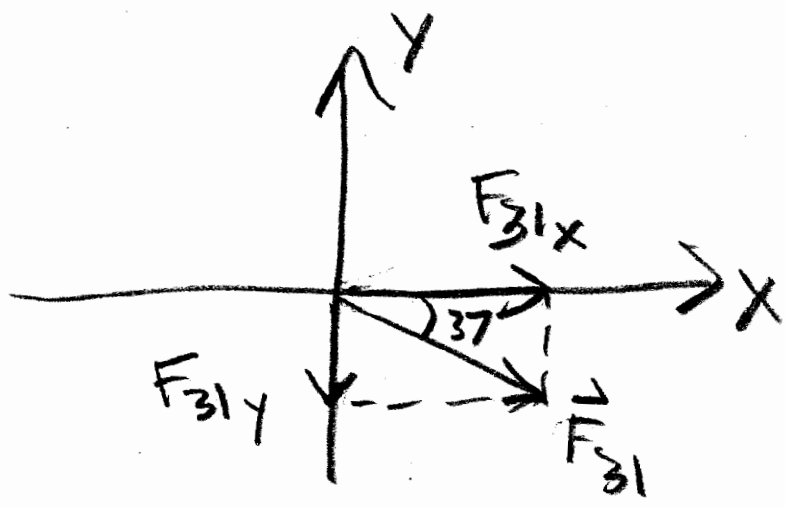
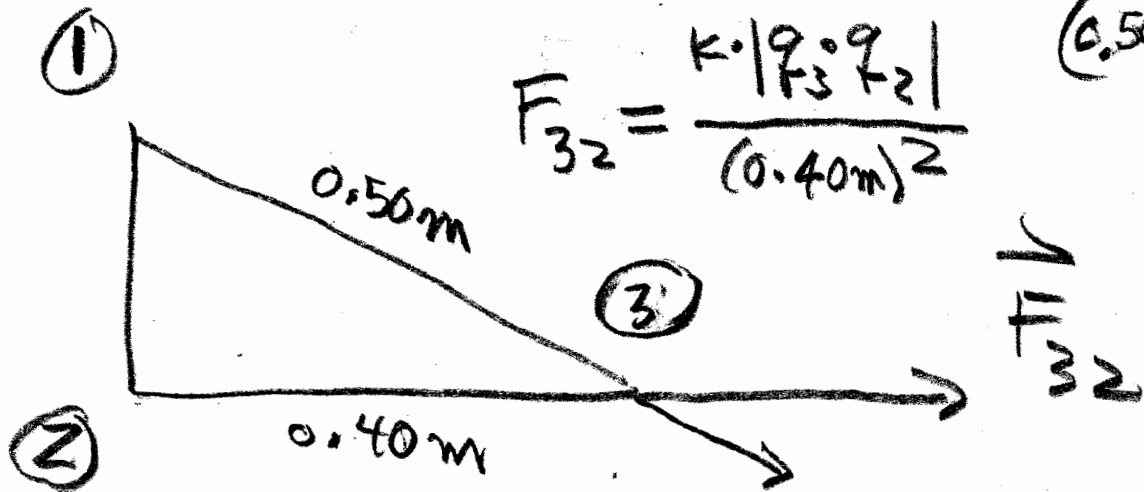


1-22-14 supplements

* Example:

NOTE: $F_{31} = \frac{k \cdot |q_3 \cdot q_1|}{(0.50\text{m})^2}$

$F_{32} = \frac{k \cdot |q_3 \cdot q_2|}{(0.40\text{m})^2}$



NET FORCE

$F_{31x} = F_{31} \cdot \cos 37$
 $F_{31y} = -F_{31} \cdot \sin 37$

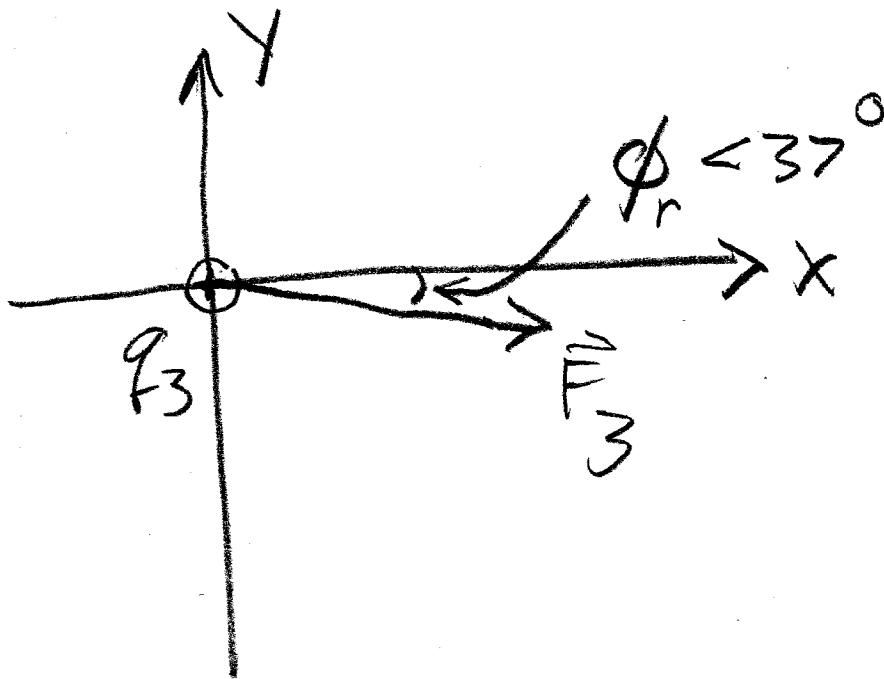
$F_{32x} = F_{32} \cdot \cos 0$

$F_{32y} = F_{32} \cdot \sin 0$

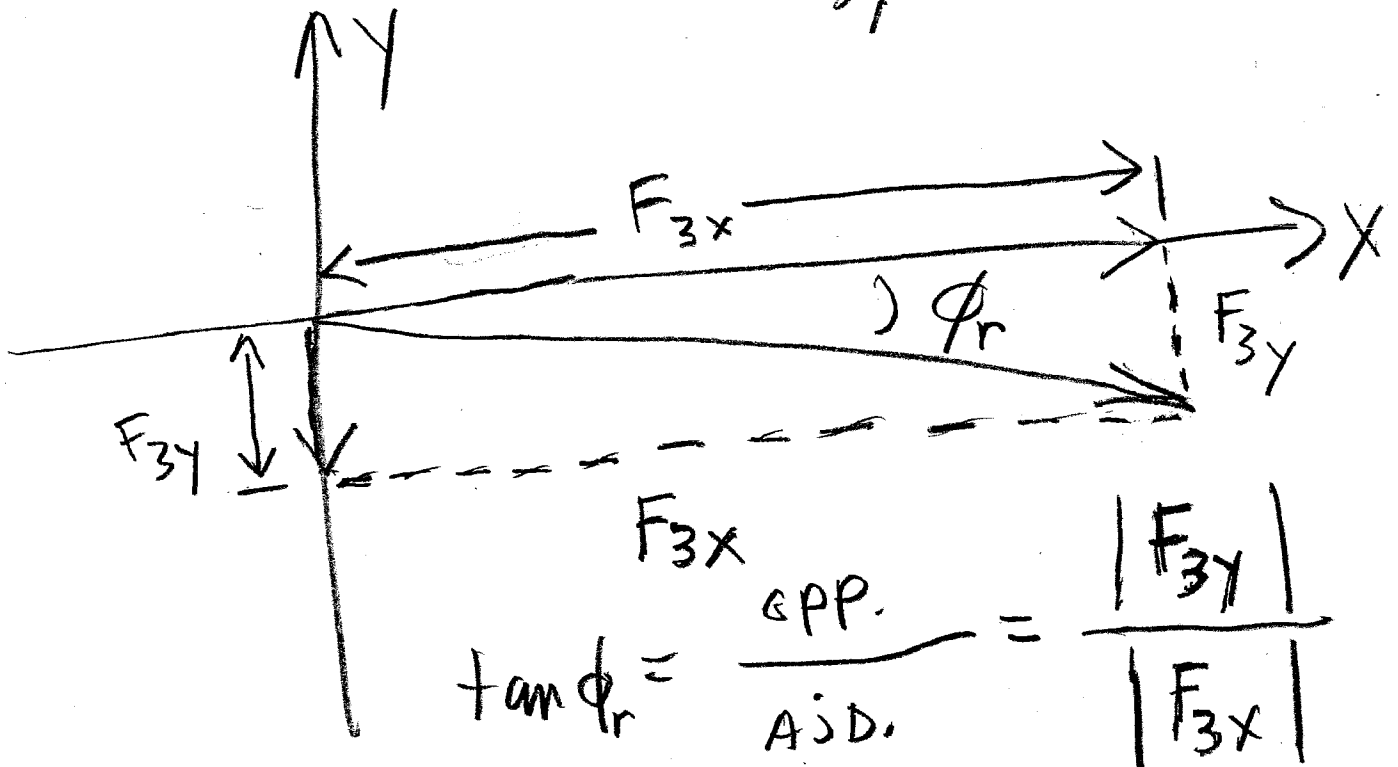
$F_{32x} = F_{32}$

$F_{32y} = 0$

$F_{3x} = F_{31x} + F_{32x}$
 $F_{3y} = F_{31y} + F_{32y}$



Blow up: $F_{3x} > 0$ } QUADRANT
 $F_{3y} < 0$ } 4.



FINAL calculations TO

Example:

$$F_{31} = \frac{k|q_3 \cdot q_1|}{(0.50\text{m})^2}$$
$$= \frac{(9 \times 10^9)(4 \times 10^{-6})(2 \times 10^{-6})}{(0.50)^2} \text{ (N)}$$
$$= 0.288 \text{ (N)}$$

$$F_{32} = \frac{(9 \times 10^9)(4 \times 10^{-6})(2 \times 10^{-6})}{(0.40)^2} \text{ (N)}$$
$$= 0.450 \text{ (N)}$$

$$F_{3x} = (0.288) \cdot \cos 37 + 0.450$$
$$= 0.680 \text{ (N)}$$

$$F_{3y} = -(0.288) \cdot \sin 37 + 0$$
$$= -0.173 \text{ (N)}$$

$$F_3 = \sqrt{(0.680)^2 + (-0.173)^2} = 0.70 \text{ (N)}$$

$$\phi_r = \tan^{-1} \left(\frac{0.173}{0.680} \right) = 14^\circ$$

