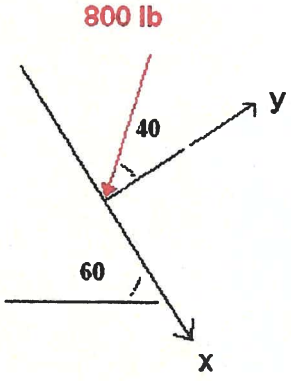
Worksheet 1

Problem 1 – Force Components

Find the components of the 800 lb force vector below. Remember to include magnitude (with correct significant figures), units, and direction. Express answers in both the x & y-components and in Cartesian format (e.g. 300 *i* + 400 *j*). How would you check if your answer is correct?



X comp = 800 lb (sin 40°)
= 514 lbs ↓ 60°

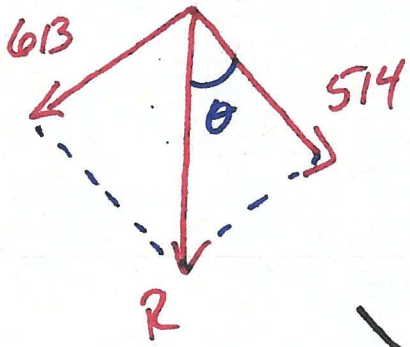
Y comp = 800 lb (cos 40°)
= 613 lbs ← 60°

OR $\{514\,\underline{i} - 613\,\underline{j}\}$ lbs

CHECK?

FIND RESULTANT OF COMPONENTS

$|\bar{R}| = \sqrt{514^2 + 613^2} = 800$ lbs ✓



$\tan\theta = \frac{613}{514}$

$\theta = 50°$ ✓