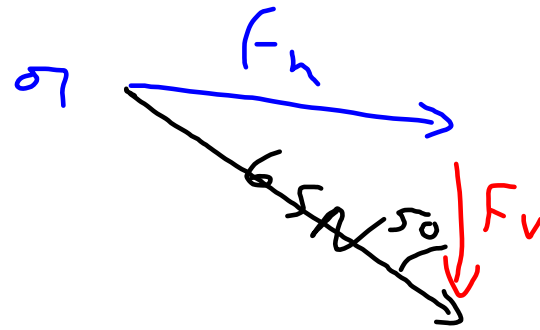
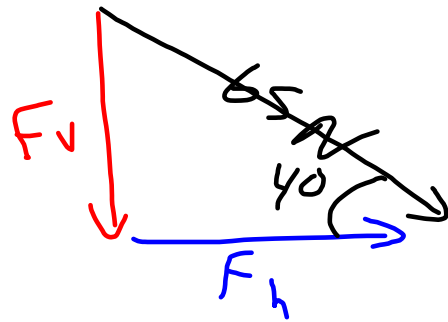
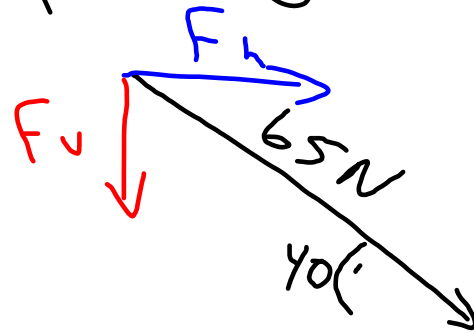
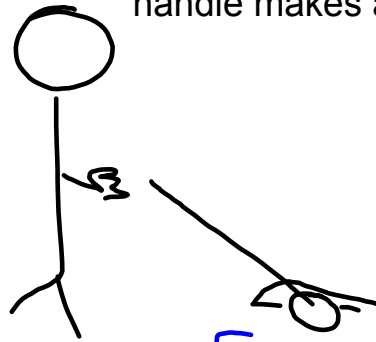


Tom pushes along the handle of the lawnmower with a force of 64 N (along the handle). What is F_h and F_v if the handle makes an angle of 40° with the ground?

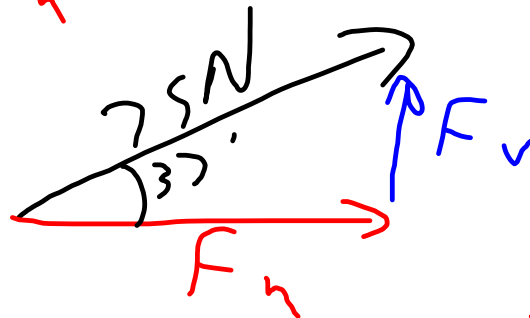
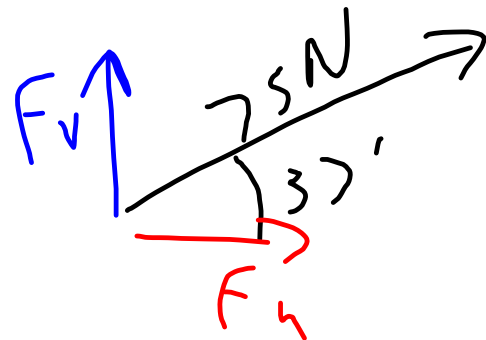


$$F_v = \sin 40(65\text{N}) = \underline{\underline{-42\text{N}}}$$

$$F_h = \cos 40(65\text{N}) = \underline{\underline{+50\text{N}}}$$



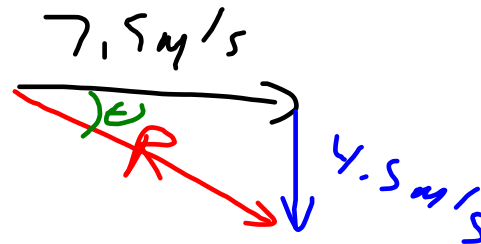
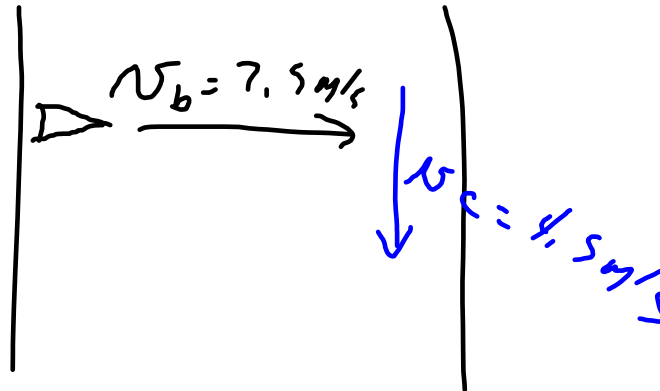
Boyfriend pulls sled with a force of 75 N directed along the rope. What is F_h and F_v if the rope makes an angle of 37° with the ground?



$$F_h = \cos 37 (75 \text{ N}) = +60 \text{ N}$$

$$F_v = \sin 37 (75 \text{ N}) = +45 \text{ N}$$

A boat can travel 7.5 m/s in still water. What is the resulting velocity of the boat if it heads across a river that has a current of 4.5 m/s?



$$R = \sqrt{(7.5 \text{ m/s})^2 + (4.5 \text{ m/s})^2}$$

$$R = 8.7 \text{ m/s at } 31^\circ \text{ downstream}$$

$$\tan \theta = \frac{4.5 \text{ m/s}}{7.5 \text{ m/s}}$$

$$\theta = 31^\circ$$

Note how the direction is compared to the current and river!
and not a "-" or "+" or 0 - 360° like before!

