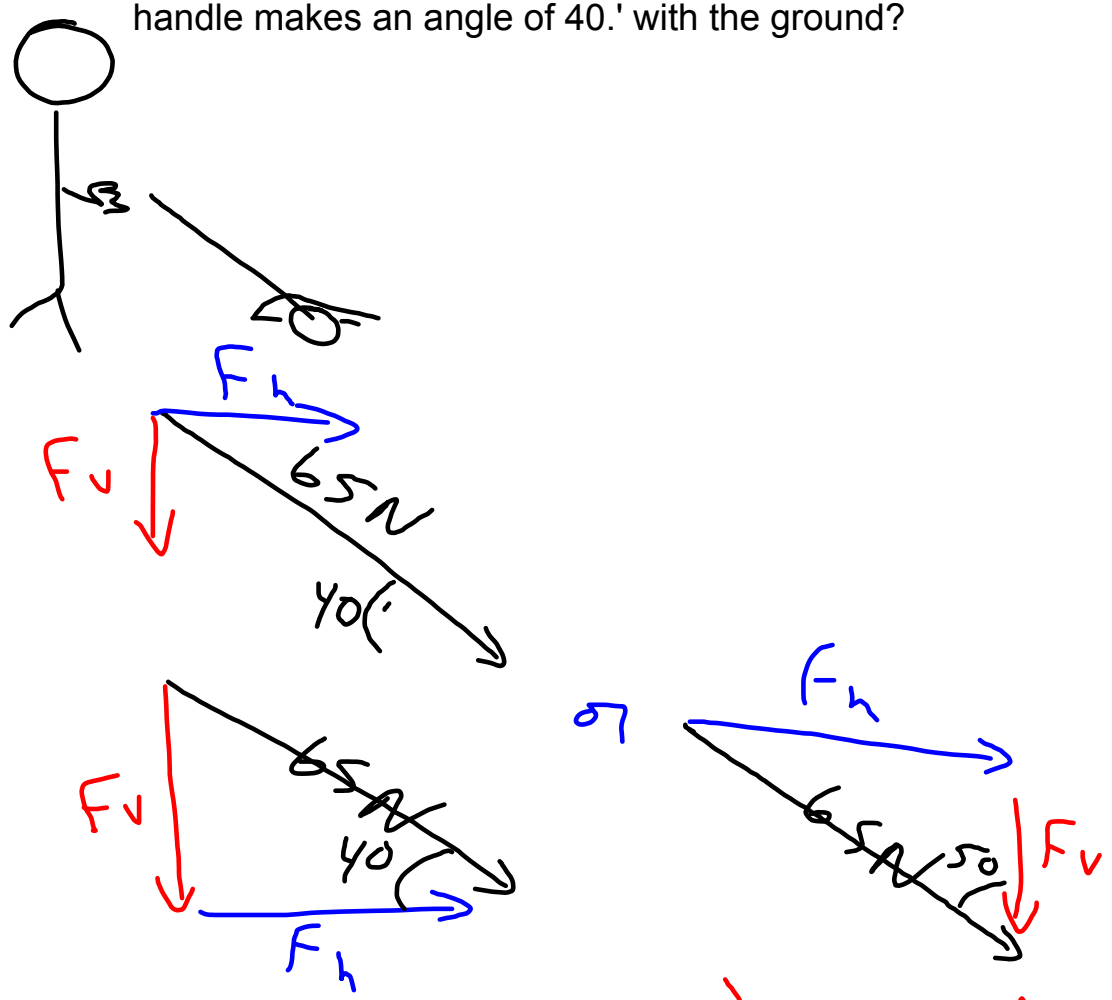
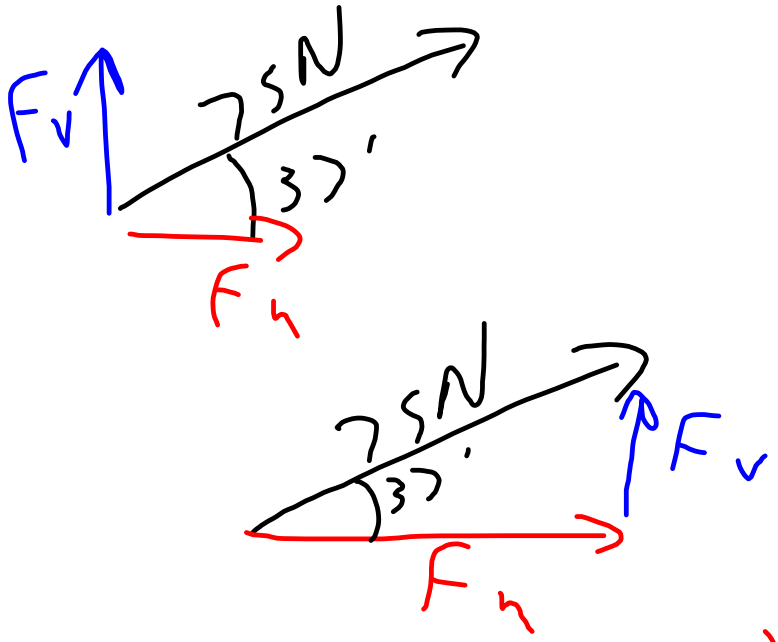
Tom pushes along the handle of the lawnmower with a force of 64 N (along the handle). What is Fh and Fv if the handle makes an angle of 40.' with the ground?




$F_v = \sin 40°(65N) = -42N$

$F_h = \cos 40°(65N) = +50N$

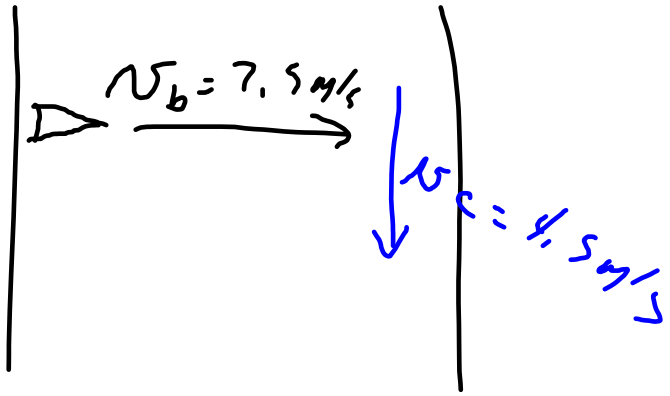
Boyfriend pulls sled with a force of 75 N directed along the rope. What is $F_h$ and $F_v$ if the rope makes an angle of 37' with the ground?

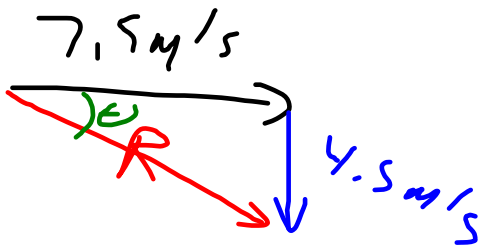



$F_h = \cos 37(75N) = +60N$

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

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?



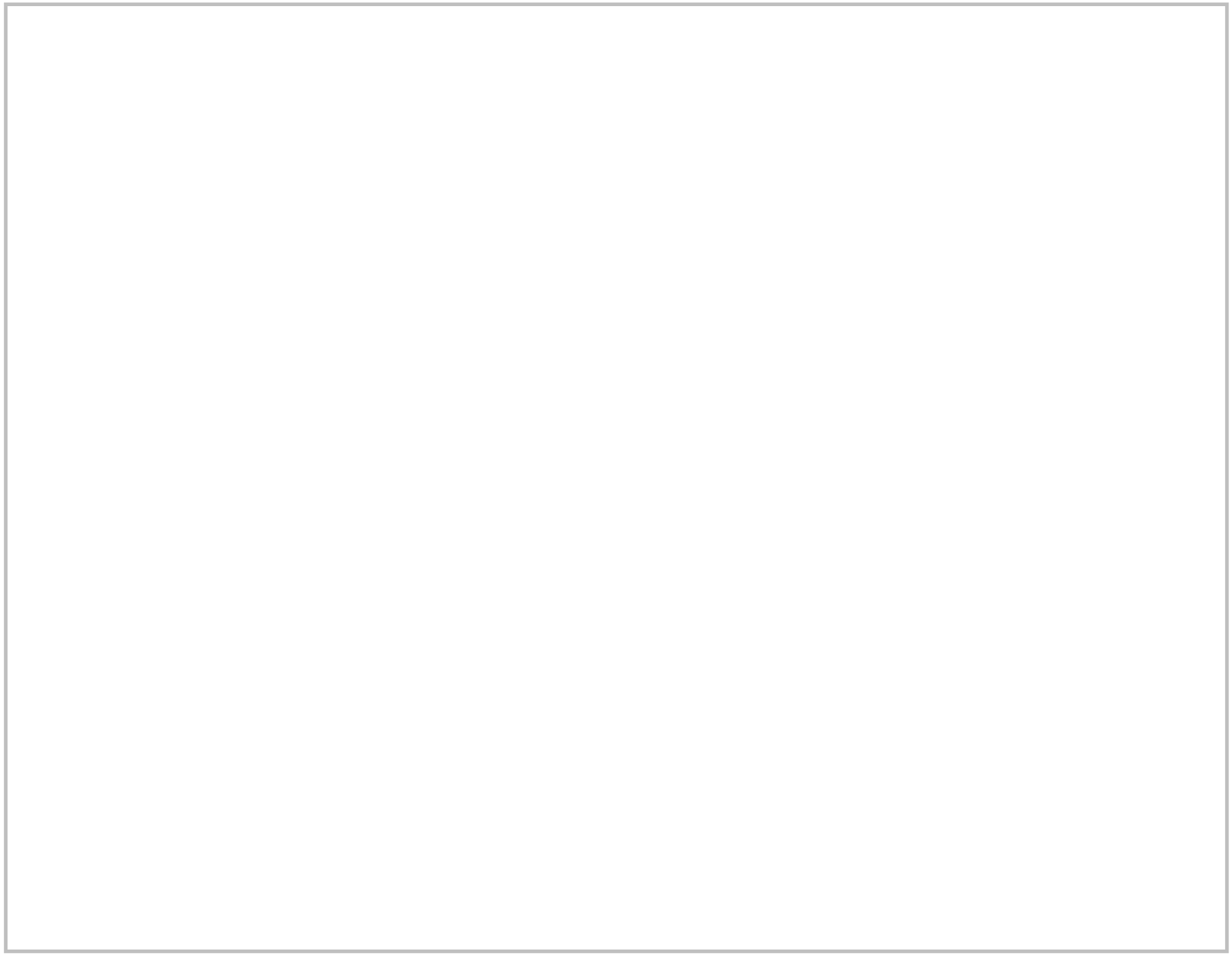

$R = \sqrt{(7.5\ m/s)^2 + (4.5\ m/s)^2}$

$R = 8.7\ m/s$ at $31°$ downstream

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

$\theta = 31°$

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



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