**INSTRUCTIONS**: *For each of the following problems, please show all of your work including equations used! Sketch each situation in your journal!*

1. Pat & Pete Camping: Pat wants to shoot a potato he cooked in foil in his campfire to his brother Pete on the opposite riverbank.

RIVER 60 M

Muzzle velocity of potato gun = 25.0 m/s



Pat

Pete

River Width = 60.0 m

* 1. Does Pete get the potato if fired at 30° from horizontal?
  2. Does the potato make it if Pat fires it instead at 45° from the horizontal?

1. Skiing Pat: It takes Pat 4.0 seconds to travel the last horizontal 20.0 m as shown below.

20.0 m

125 m



* 1. How far away does Pat land?
  2. Sketch a vector diagram showing the horizontal, vertical, and resultant velocities right before he lands on the ground.

1. Ski Jump Pat: Pat goes off the jump at 28 m/s. Will Pat clear the tree?



23 m

40. m

4.0m

40°



1. Pilot Pat: Calculate how far away (the horizontal range) Pat should release the supplies so they land at the village.



5000. m



50.0 m/s