

1. Please write down the equation for x and y axis respectively, and in one of them, it is a constant velocity motion and in the other dimension, it was a constant acceleration motion.

2. (a) you will actually need three equations here: one for x dimension of spaceship, one for x dimension of the arrow and a third equation for the y dimension of the arrow. Consider how you may solve these three equation set to find out the v , t and what is the third unknown?

(b) you will need to use some of the information you found in part (a), the goal is to find the final velocity (components) for the arrow using the velocity equations ($v_f = v_0 + \dots$), then trying to figure out the magnitude and direction of the final velocity of the arrow when it meets the spaceship.

