2D Motion Problems

1. A spacecraft is sitting still out in space. All of a sudden, an engine fires in the x-direction and gives the craft an acceleration in that direction of 2.3 m/s2. Another engine fires at the same time in the y-direction to give it an acceleration of 3.4 m/s2. If both engines fire for a distance of 250 m, how fast is the craft going in each direction after 250 m?
2. A spacecraft is moving at a speed of 75 m/s in the x-direction and 140 m/s in the y-direction. Engines fire to bring the craft to a halt. If it takes 25 s to stop the craft, what is the acceleration in each direction?
3. A spacecraft is moving only in the x-direction at a speed of 45 m/s. An engine fires in the y-direction and gives the craft an acceleration of 7.32 m/s2 in the y-direction. What is final velocity in each direction if the engine fires for 50 s?
4. A spacecraft is moving at an angle of 45° at a speed of 50 m/s. The engines fire and apply an acceleration in each direction of 4.9 m/s2. If the engines fire for 10 s in the x-direction and 70 s in the y-direction, what are the final velocities in each direction?