Work through the following problems, show your tutor then record your name before the end of your Week 9 tutorial. You are encouraged to discuss these questions and your solutions with your peers and to ask your tutor for assistance. Working through ten sets of tutorial problems is compulsory and each of the ten problem sets will contribute 0.5% towards your final grade.

Note that you earn the 0.5% for your effort in solving these problems during the tutorial rather than for answering all the problems correctly. Once you have finished these problems, you can use the remainder of your tutorial time to work on other aspects of the course. Solutions to the tutorial problems will be available at the end of the week.

1. A hanging flower basket of mass 5 kg is suspended using two ropes as illustrated below. The flower basket remains at rest. Find the magnitude of the tension along each rope. (Give your answers to two decimal place accuracy.)

2. Jane walks 400 metres due South, then 250 metres in the direction S85°W, and finally 180 metres in the direction N20°E. Determine the magnitude and direction of her resulting displacement, relative to her starting point.

3. Find the heading needed for a course of S5°E in a boat capable of 5 knots in still water if there is a current of 3 knots flowing in the direction N60°W. Also determine the resultant speed of the boat.

4. A force of 24N is exerted on an object at an angle of 60° upwards from the horizontal. If another force of 16N in the same plane is applied at an angle of 30° upwards from the horizontal, what is the resultant force acting on the object?