**Assignment 3**

Marked questions: Make sure to show all your work for each question.

1. Consider three forces: $\vec{F}_1 = 1N\ \hat{\imath}$, $\vec{F}_2 = 2N\ \hat{\jmath}$, and $\vec{F}_3 = 3\ N\ \hat{\imath} - 2\ N\ \hat{\jmath}$. Calculate and draw $\vec{F}_1 - 2\vec{F}_2 + 3\vec{F}_3$. Also draw $\vec{F}_1 - 2\vec{F}_2 + 3\vec{F}_3$. Make sure you clearly the scale that you are using to draw the vector. **(2 marks)**

2. A car of mass 2000kg is travelling at a speed of 50 km/hr towards a wall. If the net force that the wall exerts on the car is $3.0 \times 10^5$ N, how long did it take for the car to come to rest after hitting the wall? **(2 marks)**

3. You exert a constant force F at an angle to box of m, as shown in the diagram below. This small box is in contact with the wall. You are pushing hard enough that the box slides up the wall. Draw a FBD for the box. **(2 marks)**

