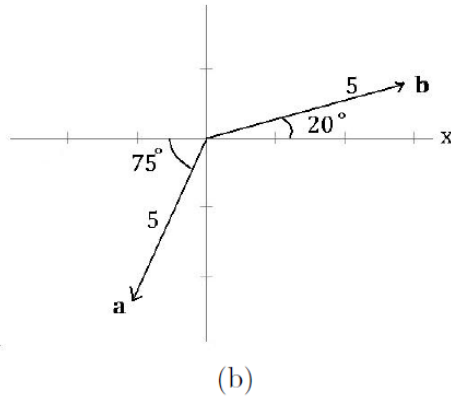
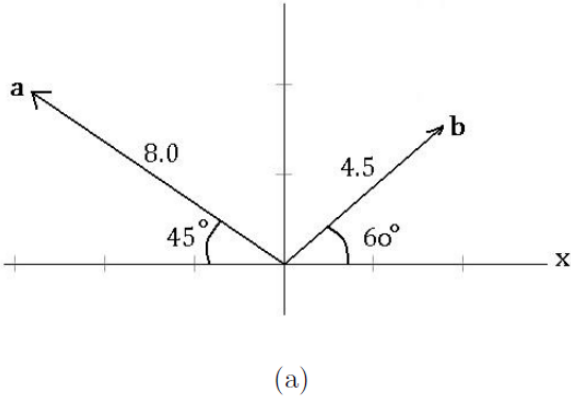
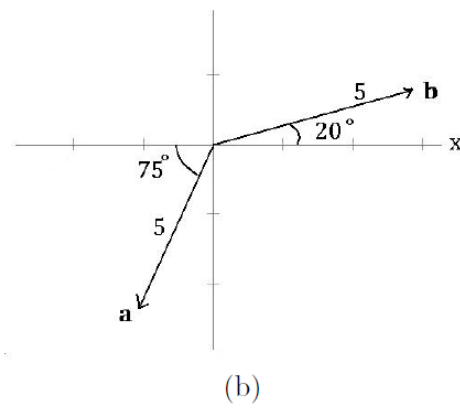
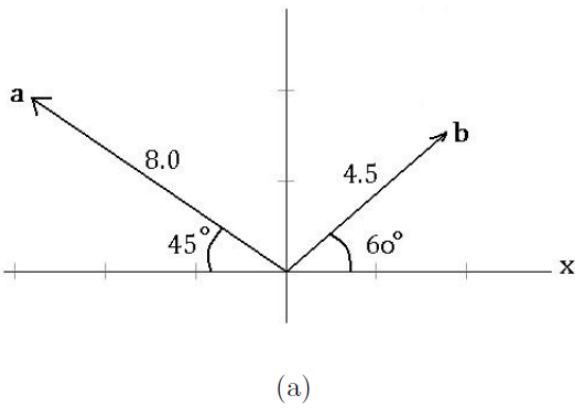


Section D: Applications of vectors

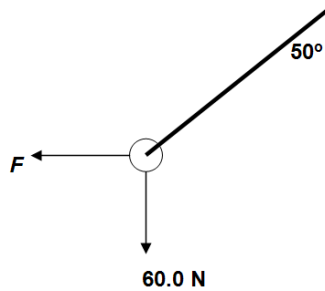
1. Draw $\vec{a} + \vec{b}$



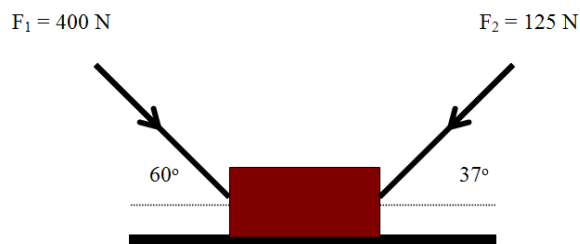
2. Draw $\vec{a} - \vec{b}$



3. A ball is held at an angle of 50° to the vertical. If the ball weighs 60.0 N , find the horizontal force F needed to hold it there.

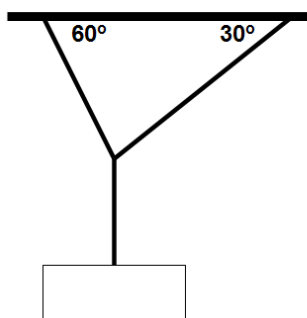


4. A 20 kg mass initially at rest on a frictionless surface is subjected to two forces as shown in the diagram. Calculate the magnitude and direction of the resultant **horizontal** force acting on the mass.

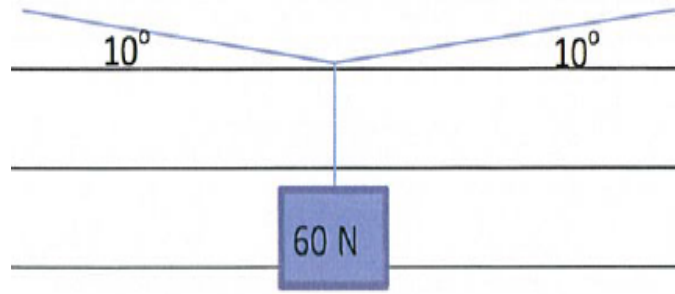


5. Alex, James and Tom are pulling a metal ring. Alex pulls with a force of 100.0 N North, James with a force of 140.0 N East and Tom exerts a force of 172.0 N, W 35° S. determine whether the ring moves and in what direction?

6. A 150 N bird feeder is supported by three cables as shown below. Find the tension in each cable.



9. A weightless clothes line is hung loosely between two trees. An object with a weight of 60.0 N is hung at the centre as shown in the diagram. What is the tension in the line if $\theta = 10.0^\circ$?



10. A sailor in a small sailboat encounters shifting winds as shown below. Find the magnitude and direction of the third leg of the journey.

