Vector Applications
Worksheet 2

I. Solve each of the following using vectors.

1. Two forces of 692 N and 423 N act at a point. The resultant forc4 is 786 N. Find the angle between the forces.

2. Three forces acting at a point are in equilibrium. The forces are 980 lbs, 760 lbs. And 1220 lbs. Find the angles between the forces ( to the nearest minute)

3. A force of 176 lbs. Makes an angle of 78°50' with a second force. The resultant of the two forces makes an angle of 41°10' with the first force. Find the magnitude of the second force and the resultant.

4. A force of 28.7 lbs. makes an angle of 42°10' with a second force. The resultant of the two forces makes an angle of 32°40' with the first force. Find the magnitude and direction of the resultant.

5. A crate is supported by two ropes. One rope makes an angle of 46°20'with horizontal and has a tension of 89.6 lbs. on it. The other rope is horizontal. Find the weight of the crate and the tension in the horizontal rope.

6. Two people are carrying a box, one on each side of the box. One person exerts a frce of 150 lbs. at an angle of 62.4° with horizontal. The other person exerts a force 114 lbs. at an angle of 54.9°with horizontal. Find the weight of the box.

7. Two tugboats are pulling a disabled speed boat into port with forces of 1240 lbs. ad 1480 lbs. The angle between these forces is 28.2°. Find the direction and magnitude of the equilibrant.