

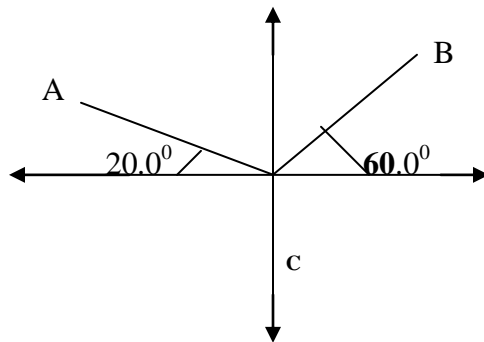
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23. Displacement vector **A** points due east and has a magnitude of 2.00km. Displacement vector **B** points due north and has a magnitude of 3.75km. Displacement vector **C** points due west and has a magnitude of 2.50km. Displacement vector **D** points due south and has a magnitude of 3.00km. Find the magnitude and direction (relative to due west) of the resultant vector $A+B+C+D$
35. Two ropes are attached to a heavy box to pull it along the floor. One rope applies a force of 475 newtons in a direction due west; the other applies a force of 315 newtons in a direction due south. (a) How much force should be applied by a single rope, and (b) in what direction (relative to due west), if it is to accomplish the same effect as the two forces added together?
43. find the resultant of the three displacement vector in the drawing by means of the component method. The magnitudes of the vectors are $A=5.00\text{m}$, $B=5.00\text{m}$, and $C=4.00$.



44. On a safari, a team of naturalist sets out toward a research station located 4.8km away in a direction 42° north of east. After traveling in a straight line for 2.4km, they stop and discover that they have been traveling 22° north of east, because their guide misread his compass. What are (a) the magnitude and (b) the direction (relative to due east) of the displacement vector now required to bring the team to the research station?
49. Vector **A** has a magnitude of 145 units and points 35° north of west. Vector **B** points 65.0° east of north. Vector **C** points 15.0° west of south. These three vectors add to give a resultant vector that is zero. Using components, find the magnitudes of (a) vector **B** and (b) vector **C**