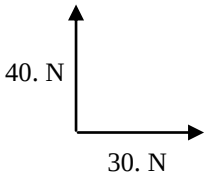
NAME: _____ **DATE:** _____ PHYSICS

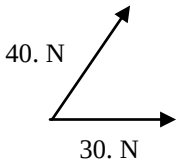
Vectors Practice Questions

1) Using a scale of 1 cm to represent 10. N, find the size and direction of the resultant of the forces of 30. N and 40. N acting at

a) right angles to each other



b) 60.^{o} to each other

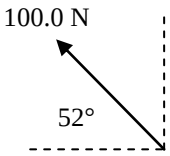


2) Using calculation, calculate the resultant for both cases in question 1.

[a) 50. N at 53° , b) 61 N at 34.7°]

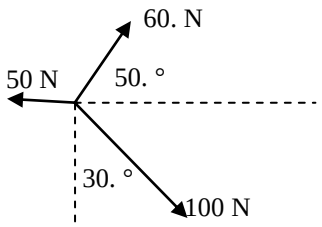
3) Resolve the vector to the right into its vertical and horizontal components.

[F_y = 79 N upwards, F_x= 62 N to the left]

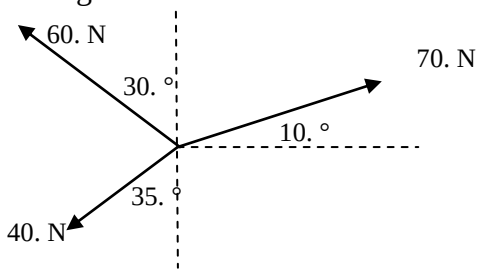


4) Calculate the magnitude and direction of the resultant of the forces shown in the figure below.

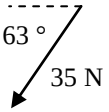
[56 N at -47 °]



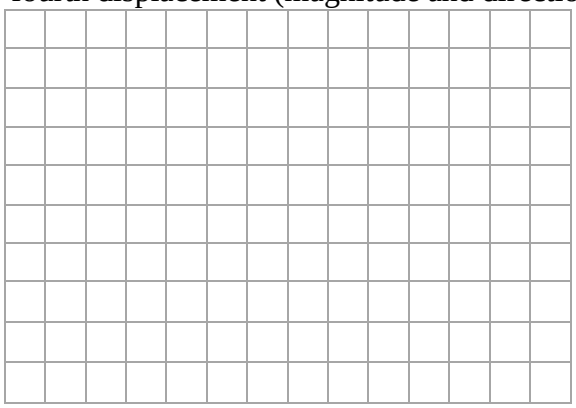
5) A 4th force is added to the other 3 forces shown below so that that the total force is zero. What is the magnitude and direction of the 4th force?



Answer



6) A cave diver is exploring a cave. He follows a passage that goes 210 m straight West, then 180 m in a direction 45^{o} East of North, then 110m at 60.^{o} East of South. After a fourth unmeasured displacement he finds himself back where he started. Draw a vector diagram and determine the fourth displacement (magnitude and direction.) **[73.3 m at 260°]**



7) What is the change in velocity (remember $\Delta\mathbf{v} = \mathbf{v}_f - \mathbf{v}_i$) given the following final and initial velocities shown below? **[104 ms^{-1} at 180°]**