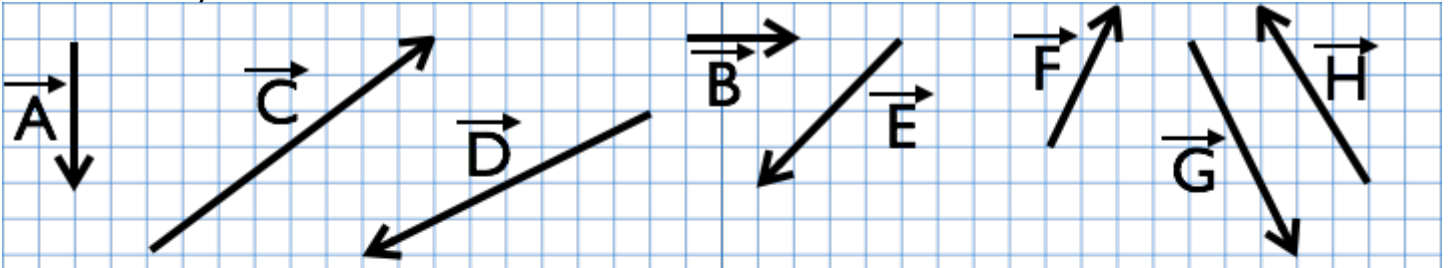


Vectors Mastery Assignment

This must be completed and turned in on time. You may receive help from anyone and anywhere when solving these problems. Completing this assignment in a timely fashion gives you the right to take a mastery test on vectors.



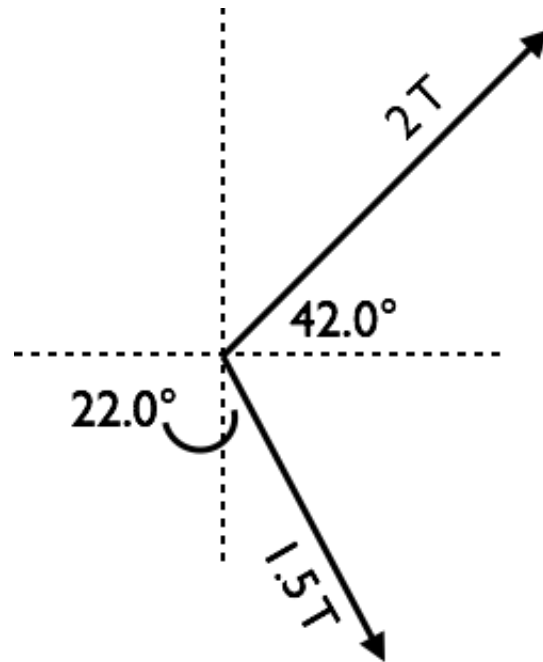
For the problems below, (a) draw the resultant making sure to label every vector. (b) Calculate the vector's magnitude and direction in polar form. Show all of your work.

(1) $A + 2B = R_1$ (2) $G - 2B - 2D = R_2$ (3) $E + D - (1/2)A = R_3$

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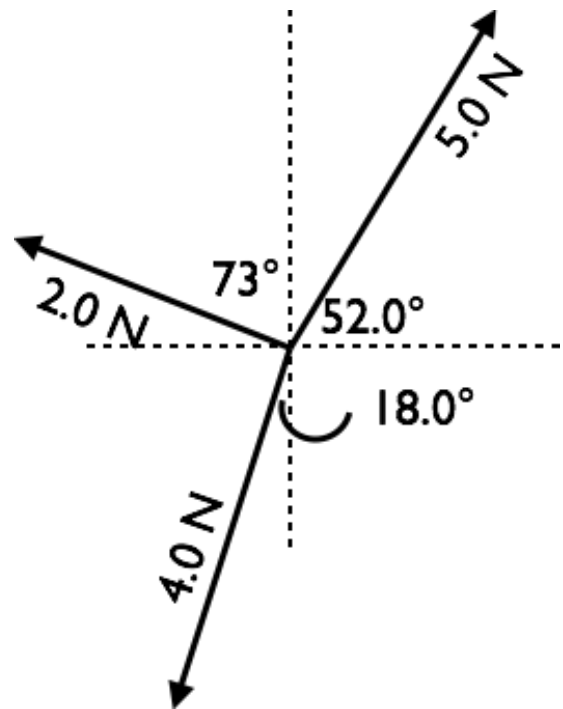
- (4) Using the method of components, add these vectors to find the net magnetic field's direction and magnitude –measured in Tesla's, T. Show all of your steps.



Vectors Mastery Assignment

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- (5) Using the method of components, add these vectors to find the net magnetic field's direction and magnitude –measured in Tesla's, T. Show all of your steps.



Linearization of Data Mastery Assignment

This must be completed and turned in on time. You may receive help from anyone and anywhere when solving these problems. Completing this assignment in a timely fashion gives you the right to take a mastery test on linearization.

- (1) In an experiment, the hysteresis of a magnetic field is measured as a function of distance. The experimenter controlled the distance. Using LoggerPro, develop an equation that relates the two columns of data shown below.

Hysteresis	distance
1.0	10
3.7	60
5.1	110
6.2	160
7.1	210
8.0	260
8.7	310
9.4	360
10.0	410
10.7	460
11.2	510
11.8	560
12.3	610

- (2) In an experiment, force generated by two magnets is measured as a function of distance. The experimenter controlled the distance. Using LoggerPro, develop an equation that relates the two columns of data shown below.

Force	distance
2.236	0.1
1.291	0.3
1.000	0.5
0.845	0.7
0.745	0.9
0.674	1.1
0.620	1.3
0.577	1.5
0.542	1.7
0.513	1.9
0.488	2.1
0.466	2.3
0.447	2.5
0.430	2.7

Linearization of Data Mastery Assignment

This must be completed and turned in on time. You may receive help from anyone and anywhere when solving these problems. Completing this assignment in a timely fashion gives you the right to take a mastery test on linearization.

- (3) In an experiment, a toy car moves across a level floor with the data that is shown. The experimenter set the time intervals. Using this data and LoggerPro determine the distance of the car at exactly 10 seconds.

Distance (m)	Time (s)
0.000	0.0
0.003	0.5
0.010	1.0
0.023	1.5
0.040	2.0
0.063	2.5
0.090	3.0
0.123	3.5
0.160	4.0
0.203	4.5
0.250	5.0
0.303	5.5
0.360	6.0

- (4) In an experiment, a toy car moves across a level flow with the data that is shown. The time is set by the experimenter. Using this data and LoggerPro determine the time it take for the car to travel 6.00 dm.

Distance (dm)	Time (s)
0.28	3.0
0.68	3.7
1.07	4.4
1.47	5.1
1.86	5.8
2.26	6.5
2.66	7.2
3.05	7.9
3.45	8.6
3.84	9.3
4.24	10.0
4.63	10.7
5.03	11.4
5.42	12.1