

2 Vectors

Worksheet A: Guided Practice

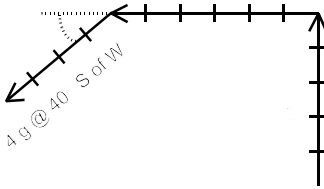
Name _____

Inquiry Physics

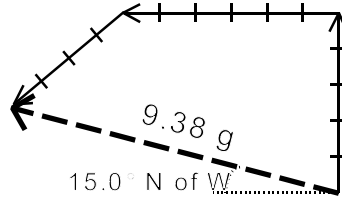
To add vectors, you first draw each vector one after another, **HEAD-TO-TAIL**. Then you draw the resultant from the tail of the first vector straight to the head of the last vector (from **START TO FINISH**).

Example: Add 5.00 g north to 6.00 g west to 4.00 g at 40.0° S of W.

First draw each vector head-to-tail as shown below:



Then draw the resultant from the start to the finish:

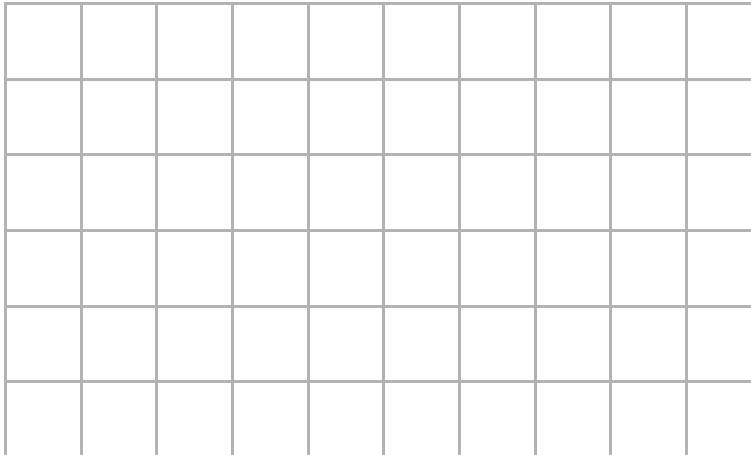


So the answer is 9.38 g at 15.0° N of W.

Notice that the resultant's angle is measured from an imaginary compass set at its TAIL, not its head.

PRACTICE PROBLEMS (answers given below)

- Add these three displacements: 3.00 m south, 5.00 m west, and 2.00 m at 40.0° north of west. Draw a graphical solution on the 1-cm grid below. Show your final results in the spaces to the right of the diagram.

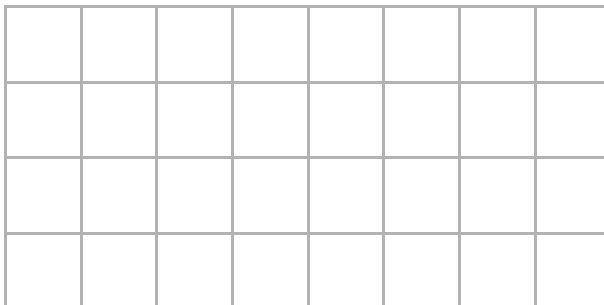


Scale:
1.00 cm equals _____ m

Resultant magnitude (in m):

Resultant direction:
(give degrees & compass headings)

- A plane moving at 300 m/s east encounters a 100 m/s wind blowing north.
 - Find the size and direction of the plane's resultant velocity by drawing a scale diagram on the grid below.



Scale: 1.00 cm equals _____ m/s

Resultant speed in m/s: _____

Resultant direction: _____

- How long will it take for the plane to travel 3750 m in its resultant direction? (Show your work.)

- How far east will the plane have travelled in that amount of time? (Show your work.)

ANSWERS

- 6.75 m at 14.7° S of W
 - 316 m/s at 18.4° N of E
 - 11.9 s
 - 3570 m east