

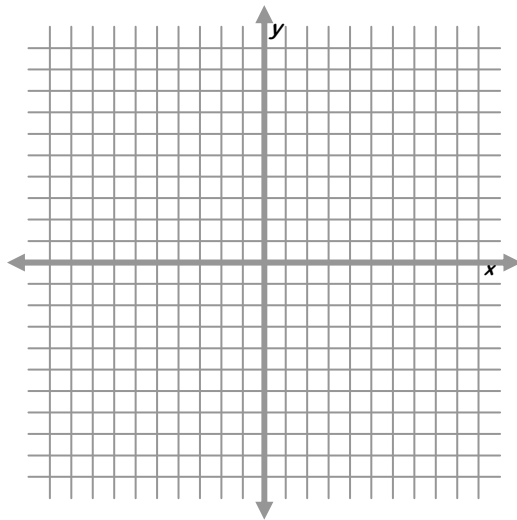
Name: _____

Date: _____

Vector Addition Word Problems
Worksheet 1

Estimate to the nearest tenth.

1. a) Draw a diagram of the vectors $(-3,5)$ and $(7,1)$.
b) Use the head to tail method to draw the resultant.
c) What is the magnitude and direction of the resultant?



2. Find the resultant of the vectors:
 - a) $\langle -16, 32 \rangle + \langle 22, 11 \rangle$.
 - b) $\langle 4, 72 \rangle + \langle 37, -127 \rangle + \langle 43, 43 \rangle$.
3. The speed of a powerboat in still water is 47 knots per hour ("KPH"). The powerboat heads directly west across the Messina River. The river flows north at 3.5 KPH. Find the resulting velocity (speed and direction) of the powerboat.

7. Miss Dalton, the tri-athlete, is swimming in the Cape Cod Canal. She swims North East at 2.5 MPH. The current is flowing South West at 0.8 MPH. Find Miss Dalton's resulting velocity (speed and direction).

8. Mrs. McGrath is swimming in Lake Michigan. She swims at 3.2 MPH, 32° north of west. There is a 0.8 MPH current running 17° east of south. Find Mrs. McGrath's resulting velocity (speed and direction).

9. Suppose in question #9 that Mrs. McGrath must also contend with a 0.5 MPH wind blowing directly east. Find Mrs. McGrath's resulting velocity (speed and direction).

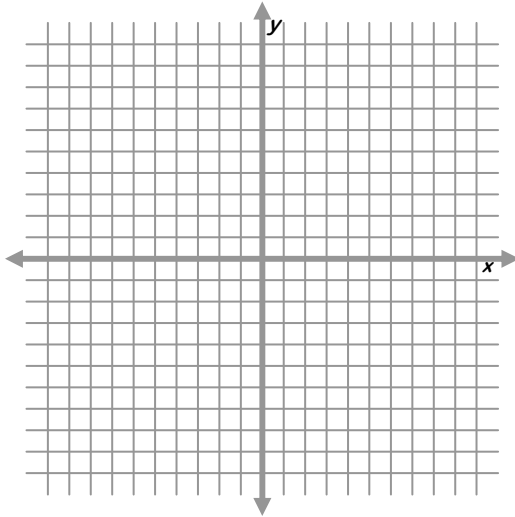
10. Miss Dalton, having been beaten soundly by Mrs. McGrath in the last 12 triathlons, has bought a powerboat. The boat travels at 35 MPH in still water. Miss Dalton heads North West at 35 MPH. The current is flowing at 8 MPH, 32° north of west. There is a tailwind blowing at 12 MPH, 11° north of west. Find Miss Dalton's resulting velocity (speed and direction).

Name: _____
Math IV

Date: _____

Vector Addition Word Problems II

11. a) Draw a diagram of the vectors $(-3,5)$ and $(7,1)$.
d) Use the head to tail method to draw the resultant.
e) What is the magnitude and direction of the resultant? _____



12. A boat travels 15 mph in still water. If it is cruising due north and a 4.5 mph wind blows directly east.
- a) What is the resultant speed and direction?
- b) Name the vector that the boat would direct itself if it wanted to head directly north.
13. You are paddling a canoe east on river at a speed of 4 mi/hr. The river flows 10° south of east at 1.5 mi/hr. What is the resulting speed and direction of your canoe?

14. What direction should you head in order to travel directly east in the canoe above?
15. Ms. Sparks drives her car 35 miles at 15° south of west. There she drops off her math books and heads 65° south of east for 50 miles.
- a) Make a head-to-tail drawing of the two vectors described.
- b) Draw the resultant and find its magnitude and direction.
16. A Boeing 727 can travel at a speed of 495 miles per hour in still air. If one traveling 30° west of north encounters a wind blowing at 45 miles per hour 15° north of west, find the resulting speed and direction of the plane.
17. Mr. McGarey sleep walks during the night and travels 45 km north of his house in his pajamas. He then turns and heads 17° north of east for 80 km. Mr. McGarey then turns directly east and walks for 20km. At the end of the 20 km, he walks into a stream and suddenly wakes astonished at his position. In what direction and how far must Mr. McGarey travel to make it back to his home?
18. Ms. Parks travels the second floor of the high school building walking south through the hall for 20 meters. She then heads across the bridge on the second floor for 15 meters at 50° west of north. She then travels 20 meters north and turns in to the math department where she walks 5 meters at 4° north of east. What is the distance of Ms. Parks' trip from her point of origin and the direction she traveled?