

Worksheet – Vectors

Identify which of the following are vectors or scalars.

1. 30 °F
2. 25.5 mph south
3. 15.2 ft
4. 50 km/hr
5. 12:45 PM
6. 20 lb up

Draw a graphical representation of the following vectors. Be sure to indicate your scale and your compass.

7. 2.00×10^2 mph east
8. 1.00×10^2 N south
9. 150 lb 45° south of west

Combine the vectors below using the head to tail method.

10. 1.00×10^2 N east, 50.0 N east
11. 75 N east, 75 N west
12. 50.0 N south, 40.0 N west
13. 51 N south, 45.5 N east

Combine the vectors below using scale drawings or right triangle trig. Follow rules for significant figures. Show ALL work.

14. 4.20×10^2 mph 45.0° south of east, 1.00×10^2 mph 35.0° south of west
15. 45 N west, 18 lb north
16. -62 N south, 84 N west
17. 30.0 lb south, 27 lb west, 50.0 lb east

Combine the vectors below using the graphical AND component method of vector addition. Compare answers.

18. 1.00×10^2 lb 52.0° north of east, 4.00×10^1 lb east
19. 48.0 N 30.0° S of W, 27.0 N 40.0° S of E

Use any method to solve the problems below.

20. A very strong girl runs 2.00×10^2 miles east for several hours. After a brief rest she runs another 1.00×10^2 miles north. She stops for the night at a local bed and breakfast and the next morning walks 75 miles directly south-east. Find the magnitude and direction of her displacement.

21. An airplane flies at 5.60×10^2 mph 20.0° N of W. What is the ground speed of the plane if there is a wind blowing from the west at 65.5 mph?

XC. A traffic light is supported by two cables that are 140° apart. Each cable exerts a tensile force of 150 N on the light. How much does the light weigh?