

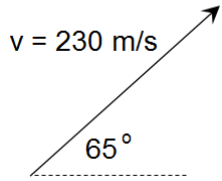
Vector Problems
Honors Physics

Name _____

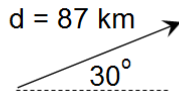
Vector Components

Use sine or cosine to find the components of the vectors in the following situations. Sketch and label the x and y components.

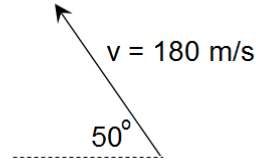
1.



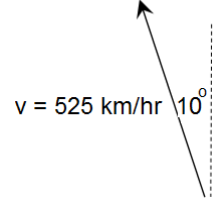
2.



3.



4.



5. A gun is fired at 35° above the horizontal at 350 m/s . What are the horizontal and vertical components of the velocity of the bullet?

6. A football is thrown at 17 m/s at an angle of 28° above the horizontal. What are the components of the football's velocity?

Adding Perpendicular Vectors

Sketch a vector diagram for each situation. Add the following vectors. Be sure that your resultant vector has a magnitude and a direction (expressed in degrees).

7. $35 \text{ m North} + 65 \text{ m West}$

8. $125 \text{ m/s south} + 250 \text{ m/s west}$

9. A hiker walks 4 miles due south and then turns and walks 7 miles due east

10. A plane flies due north at 225 km/hr . A wind carries it due east at 55 km/hr . What is the magnitude and direction of the plane's velocity?