

VECTORS

1

What is a vector quantity?

- **A quantity that has both magnitude and direction**
- **Vectors (or arrows) are used to symbolize the quantity's size and direction**

2

How Are Vectors Used?

- **Vectors are used to represent size and direction graphically.**
- **Common vector quantities are:**

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How Are Vectors Added?

- **Vectors are added head to tail.**
 - **Draw the first vector the appropriate length and direction.**
 - **Draw the second vector starting at the head (point) of the vector it is being added to.**

4

Drawing the resultant

- **Draw the vector sum from the tail end of the first vector to the head (point) end of the last vector.**

5

Adding Parallel Vectors

6

Adding 2 Perpendicular Vectors

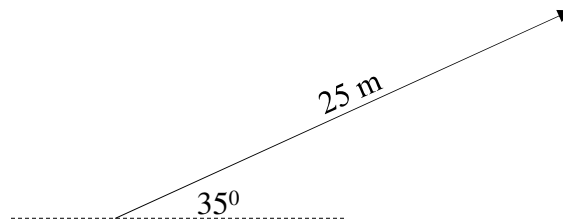
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Adding 3 (or more) Perpendicular Vectors

8

Components

- All vectors can be broken into horizontal and vertical components



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Non-Perpendicular Vectors Sample Question 1

- A paper airplane is thrown at 6 m/s to the East. There is a wind blowing at 8 m/s, 40° West of south. What is the resulting velocity of the plane?

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Non-Perpendicular Vectors Sample Question 1

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Adding Non-Perpendicular Vectors Sample 2

- **Jimmy walks 37 m northwest. He then turns and walks 25 m, 72° East of North. What is Jimmy's total displacement?**

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Adding Non-Perpendicular Vectors

Sample 2