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Crash Course Physics #4: Vectors and 2D Motion

Name: _____ Date: _____

You can access the video here → <https://youtu.be/w3BhzYI6zXU?si=JcXIispq7SL8C7pA>

1. A _____ has both magnitude and direction.
2. A _____ only has magnitude and no direction.
3. The _____ of a vector tells you how large it is.
4. The _____ of a vector tells you which way it is pointing.
5. When you draw a vector, it is similar to the _____ of a right triangle.
6. The two sides that describe a vector are called its _____.
7. The horizontal component of a vector can be found using the _____ of the angle.
8. The vertical component of a vector can be found using the _____ of the angle.
9. In unit vector notation, the letter _____ represents the x-axis direction.
10. In unit vector notation, the letter _____ represents the y-axis direction.
11. The acceleration due to gravity is approximately _____ m/s^2 .
12. Vectors can be added by adding their _____ separately.
13. The kinematic equations can still be used in 2D motion as long as each _____ is treated independently.
14. The vertical velocity at the _____ of a projectile's motion is zero.
15. A vector times a _____ just scales each component without changing its direction.

Crash Course Physics #4: Vectors and 2D Motion KEY

1. A **vector** has both magnitude and direction.
2. A **scalar** only has magnitude and no direction.
3. The **magnitude** of a vector tells you how large it is.
4. The **direction** of a vector tells you which way it is pointing.
5. When you draw a vector, it is similar to the **hypotenuse** of a right triangle.
6. The two sides that describe a vector are called its **components**.
7. The horizontal component of a vector can be found using the **cosine** of the angle.
8. The vertical component of a vector can be found using the **sine** of the angle.
9. In unit vector notation, the letter ***i*** represents the x-axis direction.
10. In unit vector notation, the letter ***j*** represents the y-axis direction.
11. The acceleration due to gravity is approximately **9.81 m/s^2** .
12. Vectors can be added by adding their **components** separately.
13. The kinematic equations can still be used in 2D motion as long as each **dimension** is treated independently.
14. The vertical velocity at the **highest point** of a projectile's motion is zero.
15. A vector times a **scalar** just scales each component without changing its direction.

15 Questions

Answer Key Included

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