

**General Physics I–Honors: PHYS 101H (Fall 2022)**  
**Quick quiz 2**

Chris Monahan  
William & Mary

**Instructions**

These quick quizzes are low-stakes assessment tools to help cement your understanding of our material. They will help you remember the key facts and can serve as a study guide to help you focus on material you are less familiar with. These quizzes do not contribute to your grade and are for your own use.

1. **Without looking at your notes or the textbook, and without consulting with your neighbour**, write your answer to each question in the **first column**.
2. Discuss with your neighbour and use your notes or the textbook as needed to answer each question and write your answers to each question in the **second column**. You should complete the second column, but do not add anything to your first column.

There are four questions.

**Question 1**

Is it possible for two vectors of different magnitudes to add to zero? Is it possible for three vectors of different magnitudes to add to zero? Explain.

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**Question 2**

Is the following reasoning correct? If the launch angle  $\theta$  of a projectile is increased (while keeping the magnitude of the initial velocity the same), then the initial vertical velocity component increases, so the time in the air increases, so the total horizontal distance traveled increases.

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**Question 3**

A projectile is fired at an angle  $\theta$  with respect to level ground. Is there a point in the motion where the velocity is perpendicular to the acceleration? If so, where is this point? If not, why not?

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**Question 4**

Which of the following answers is the best estimate for the time it takes an object dropped from rest to fall a vertical mile (about 1600 m)? Ignore air resistance, as usual. (a) 5 s (b) 10 s (c) 20 s (d) 1 min (e) 5 min

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