General Physics I–Honors: PHYS 101H (Fall 2022)
Quick quiz 4

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

Why do hurricanes rotate anti-clockwise in the northern hemisphere and clockwise in the southern hemisphere?

Question 2

Which of the following forces can never, under *any* circumstances, do work? (a) Gravity; (b) Static friction; (c) Kinetic friction; (d) Tension; (e) Normal force; (f) None of the above, they can all do work.

Question 3

What is the difference between centripetal and centrifugal forces? Should both be included when calculating the acceleration from Newton's second law, $\mathbf{F}_{\text{net}} = m\mathbf{a}$?

Question 4

Neglecting air resistance, how much would you have to raise the vertical height if you wanted to double the impact speed of a falling object?

Question 5

[**Additional question for optional homework**] How does your answer to question 4 change if you include a linear model of air resistance? What about a quadratic one?