

Name \_\_\_\_\_

### PHY2048C, Practice Quiz 1

**A- Read all the quiz once, or twice, before beginning to write. Make sure to comprehend all questions and start with those you feel most confident in.**

**B – Be clear and concise. There are no extra points for being verbose or writing extra.**

**C –Only use the white pages that I will provide. You have 60 minutes to answer the quiz.**

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#### Problem 1

Maria, Sofia, and Alberto have B./ 550 between them. The ratio between Alberto's and Sofia's money is 2:1 initially. Alberto spends some money, and now the ratio is 5:4 between the two, while Maria spends B./ 50 and the total money they all have now becomes B./ 200. How much money does Sofia have?

#### Problem 2 (OpenStax)

A commonly used unit of mass in the English system is the pound-mass, abbreviated lbm, where  $1 \text{ lbm} = 0.454 \text{ kg}$ . What is the density of water in pound-mass per cubic foot?

#### Problem 3 (OpenStax)

In a 100-m race, the winner is timed at 11.2 s. The second-place finisher's time is 11.6 s. How far is the second-place finisher behind the winner when she crosses the finish line? Assume the velocity of each runner is constant throughout the race.

**End of Quiz** (quizzes are always 3 problems total, the rest of the problems in this sheet are extra practice)

**Problem 4 (Extra)** Consider the equation  $y = mt + b$ , where the dimension of  $y$  is length and the dimension of  $t$  is time, and  $m$  and  $b$  are constants. What are the dimensions and SI units of (a)  $m$  and (b)  $b$ ?

**Problem 5 (Extra)** A pilot flies horizontally at 1300 km/h, at height  $h = 35 \text{ m}$  above initially level ground. However, at time  $t = 0$ , the pilot begins to fly over ground sloping upward at angle  $\theta = 4.3^\circ$  (Figure 1). If the pilot does not change the airplane's heading, at what time  $t$  does the plane strike the ground?

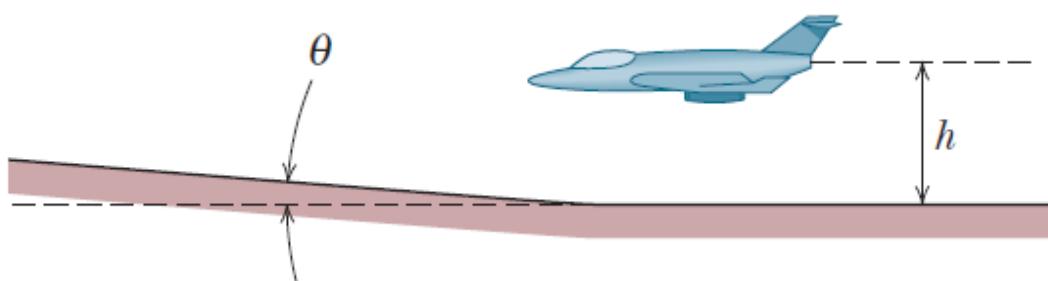


Figure 1