

Physics 10154 - Exam #1C³

Answer the following two questions. Be sure to clearly indicate your answer with a circle or box. Show all work. If I cannot see how you arrived at an answer, I will deduct points!

1. A hiker walks along three straight trails:

Trail #1 is 2.5 miles long, 17° West of South.

Trail #2 is 3.1 miles long, 22° South of East.

Trail #3 is 1.4 miles long, 63° North of West.

Find the magnitude and direction of the total displacement.

2. A rocket starts at rest and accelerates 27 meters/sec^2 at an angle of 71° above the horizontal until it reaches a vertical altitude of 350 meters above the ground. From there, the rocket is in free-fall. What is the total horizontal distance from the launching point to the point where the rocket hits the ground again?