

**Physics 10154 - Exam #<sup>3</sup>AA**

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 driver travels along three straight roads to reach her destination.

The first road is 175 miles long,  $25^\circ$  South of West.

The second road is 130 miles long,  $15^\circ$  East of South.

The third road is 240 miles long,  $29^\circ$  South of East.

Find the magnitude and direction of the total displacement.

2. A ball is thrown straight up from ground level, reaching its maximum height in 2.5 seconds. A 2nd ball is launched from ground level at an angle of  $35^\circ$  above the horizontal, reaching the same maximum height. How far does the 2nd ball travel horizontally before returning to the ground?