

**Instructions:** *On all five assignments this term, there will be 4-5 problems — three of which will be graded to determine your assignment mark for the term. Marks will be deducted for assignment problems not attempted. Be neat and organized in your solutions, and be sure to include units, directions, and 3 significant figures in your final answer.*

1. Problem 3.1 from the text by Ginsberg (p.105).

Start with an  $XYZ$  frame at  $A$ , with the  $Y$  axis from  $A$  to  $E$  and the  $X$  axis parallel to edge  $ED$ , and determine the transformation to the  $xyz$  frame.

2. Problem 3.8 from the text by Ginsberg (p.107).

**Optional:** Use Maple or Matlab to solve the followup Problem 3.9

3. Problem 3.19 from the text by Ginsberg (p.110).

4. Problem 3.29 from the text by Ginsberg (p.113).

Express your results in a Cartesian frame that is rotating with the barrel, with the  $x$  axis aligned with the barrel and the  $z$  axis out of the page.

5. **Optional:** Problem 3.33 from the text by Ginsberg (p.115).