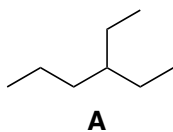
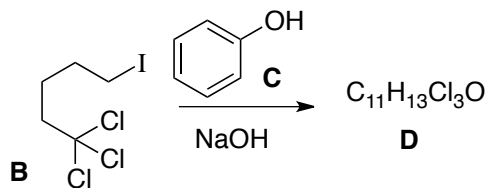


1. (10 points) Using any piece that contributes three or fewer carbons to the final product, outline a synthesis of **A**.

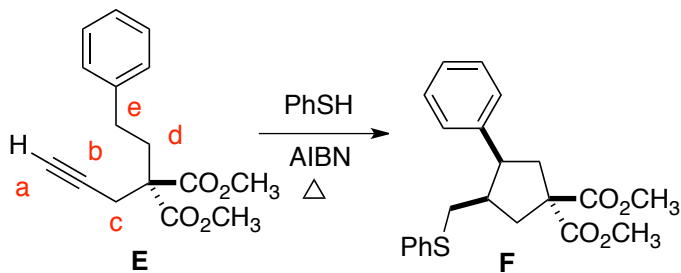


2. (10 points) Deduce the structure of **D**, and draw an arrow-pushing mechanism for its formation.



¹³ C NMR	¹ H NMR
24.1, t	1.8, m, 4H
28.7, t	2.77, t, J = 7.0 Hz, 2H
55.4, t	4.01, t, J = 5.6 Hz, 2H
67.6, t	6.90, d, J = 8.0 Hz, 2H
100.3, s	6.95, t, J = 6.9 Hz, 1H
114.8, d (2)	7.25, m, 2H
121.1, d	
129.8, d (2)	
159.0, s	

3. (10 points) Draw an arrow-pushing mechanism for the conversion of **E** to **F**.



bb	bf