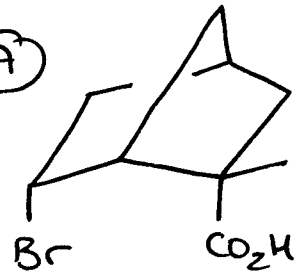
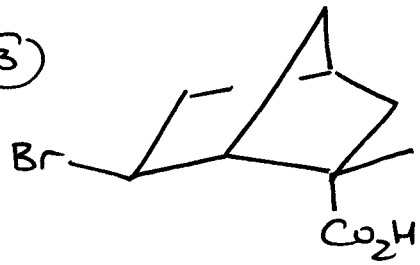
Q6 FROM CHEM 30A FINAL 2004 FALL

- Consider two molecules

(A)

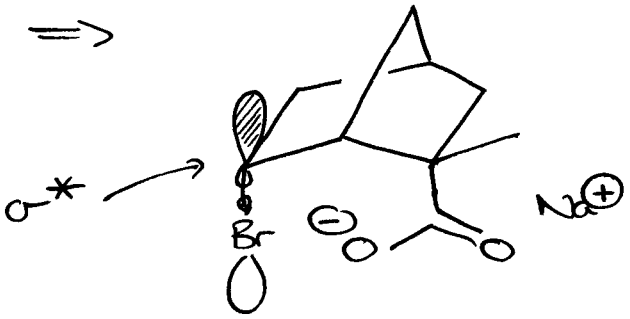


(B)

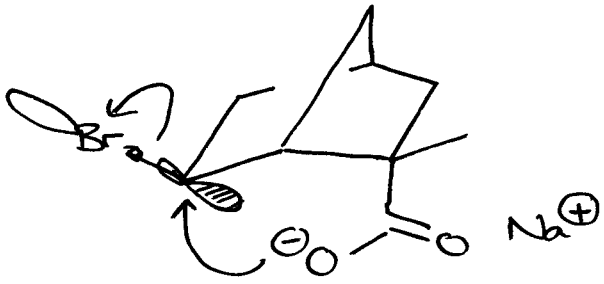


Both of these molecules are deprotonated with a weak base such as $NaHCO_3$

$\Rightarrow$

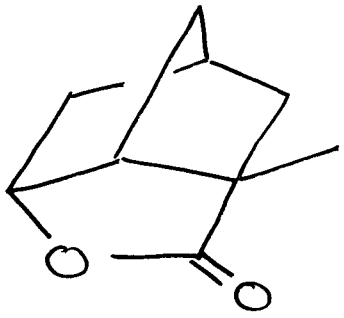


NO INTRAMOLECULAR S_N2 possible, wrong geometry (σ^* points in the wrong direction)



INTRAMOLECULAR S_N2 is possible, backside attack is easy in this compound, and a new compound is formed

$\downarrow S_N2$



So, this product can only form from (B), and NOT (A)

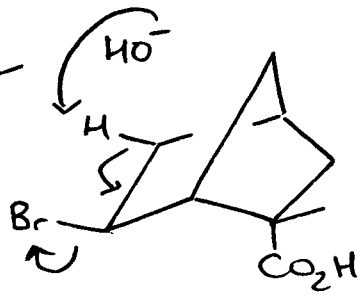
...In part (b), we consider the reaction with a ...stronger base, NaOH, and both (A) and (B) give ...the same product.

...

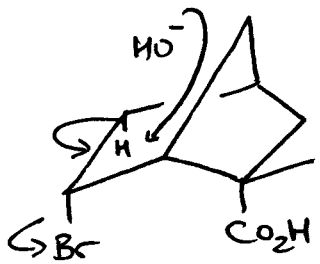
...So, 2° substrate, STRONG BASE => elimination.

...

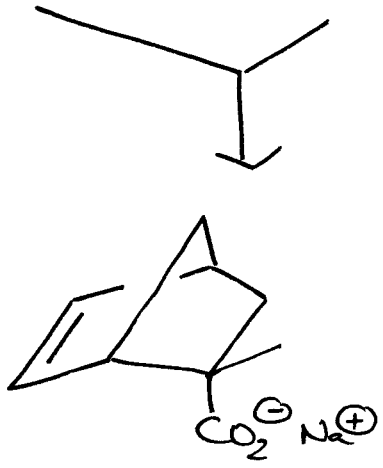
... SO



E2 (SYN)



E2 (SYN)



Obviously CO_2H is also deprotonated by NaOH.

...In each case the elimination is SYN. There ...is no ANTI relationship between an H and a ... Br in either (A) or (B), the two β-Hs ...are, in each case, 0° or 120°. Remember, ...SYN elimination (0°) is not impossible, it's just ...that ANTI is favored if you can go via that ...pathway, but that is not possible here.

...