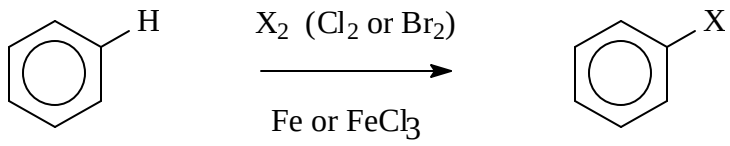
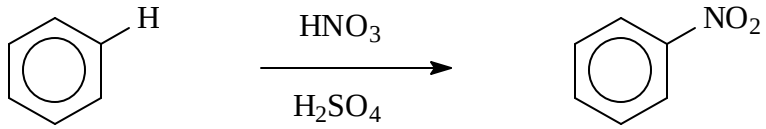
Aromatic Reaction Summary

Substitution

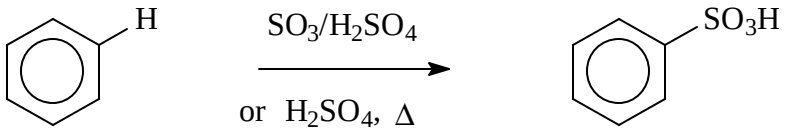
1) Halogenation – addition of Cl or Br; need a Lewis acid catalyst (Fe or $FeCl_3$)



2) Nitration

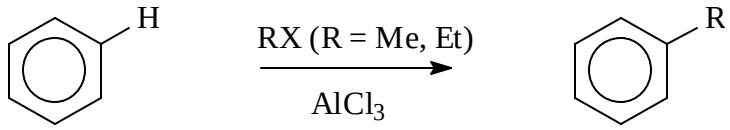


3) Sulfonation

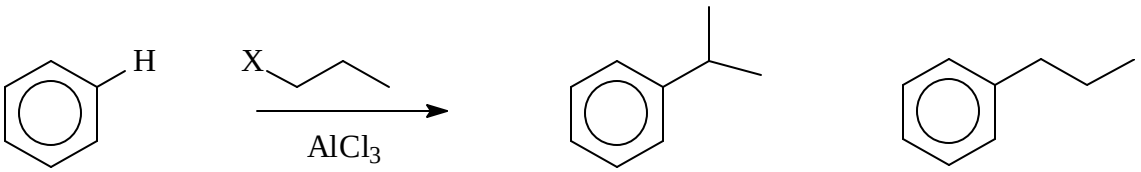


Friedl-Crafts Alkylation -- substitution of methyl (Me) or ethyl (Et); need Lewis acid catalyst

4)



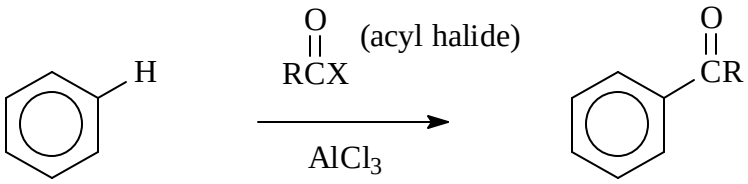
Why does R have to be Me or Et? Longer alkyl chains attach at most substituted carbon



rearranged product not formed

Friedl-Crafts Acylation – substitution of acyl group (RC=O) for H; need Lewis acid catalyst

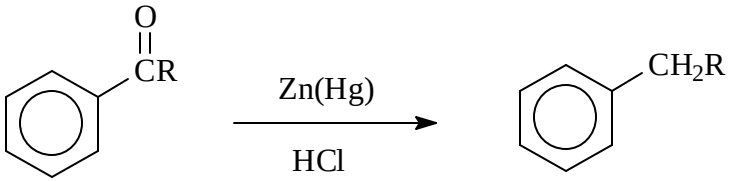
5)



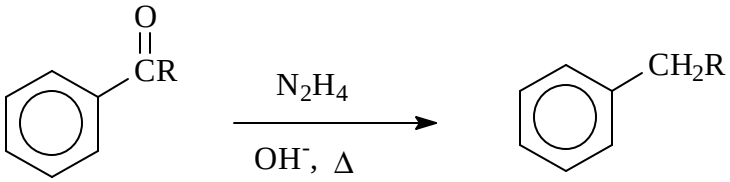
ketone

Ketone Reduction Reactions – replace C=O with CH_2

6) Clemmensen

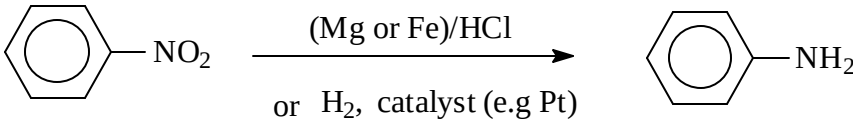


7) Wolff-Kishner



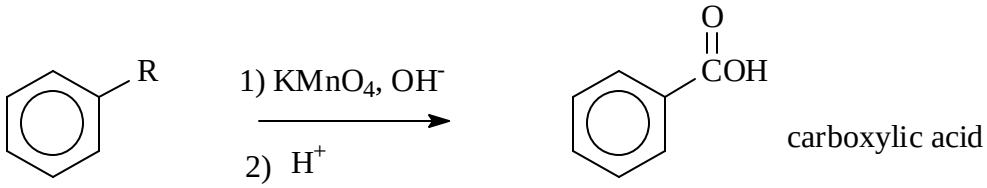
Reduction of nitrobenzene to form aniline

8)



Oxidation -- R can be any alkyl group; all R groups are oxidized to –COOH

9)



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