

Oxidation States, Hydrogenation, And Hydrogenolysis

from chapter(s) _____ in the recommended text

A. Introduction

B. Oxidation States In Organic Chemistry

addition

loss

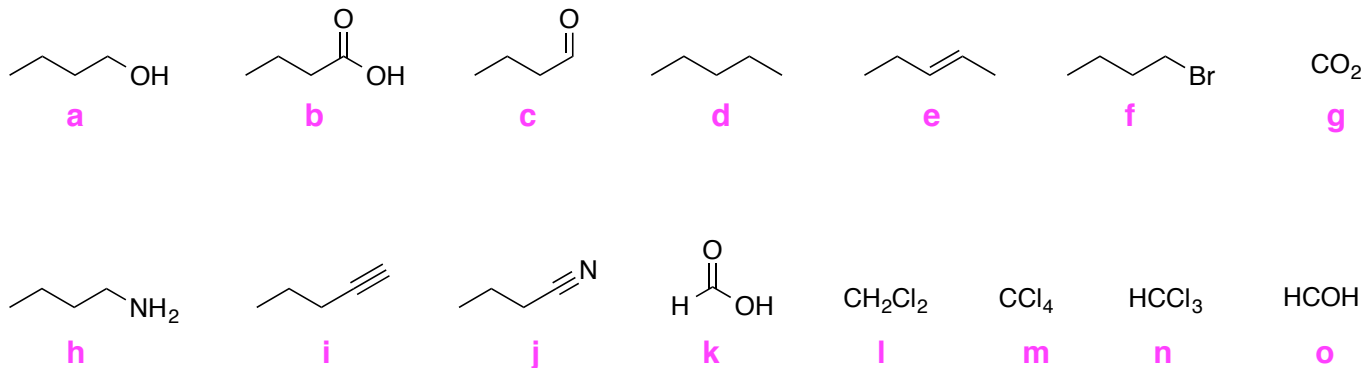
addition

loss

more less C-O,

less C-H bonds

more C-O,



lowest oxidation state

d

one level higher

a, e, f, h

one more level higher

c, i, l, o

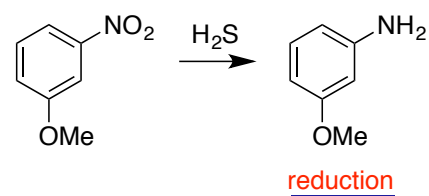
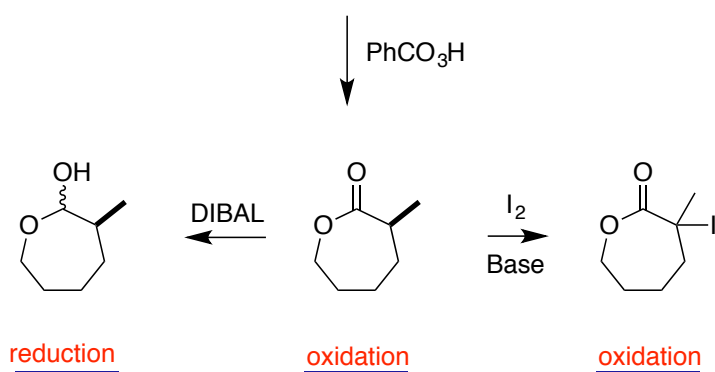
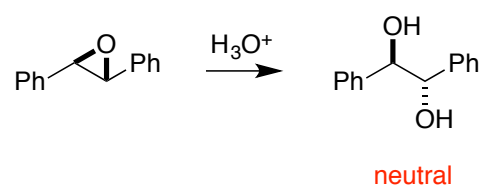
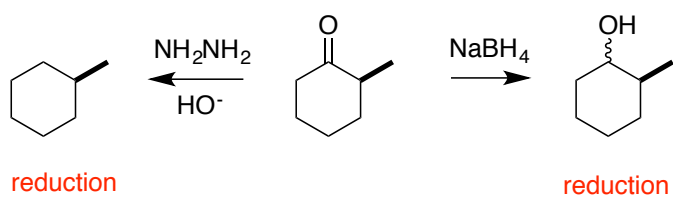
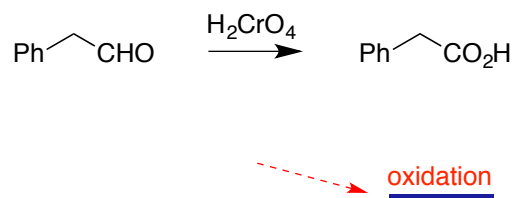
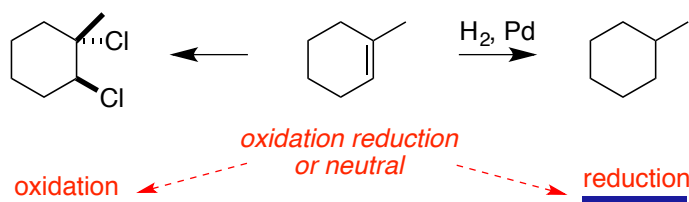
still another level higher

b, j, k, n

highest oxidation state

g, m

Cyclohexane is at a higher



C. Addition Of H₂

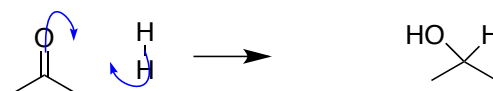
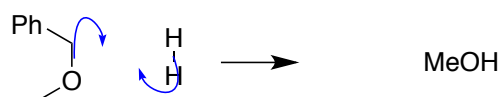
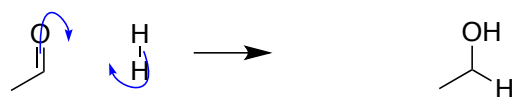
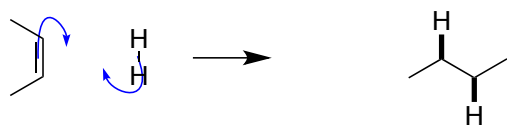
Hydrogenation And Hydrogenolysis

Hydrogenation reactions

hydrogenolysis involve

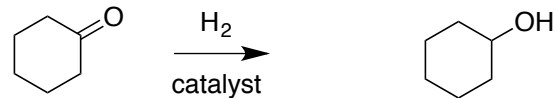
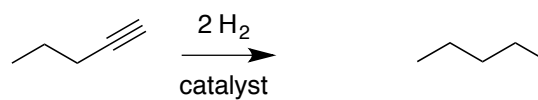
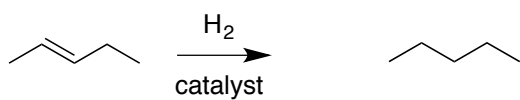
homolytic

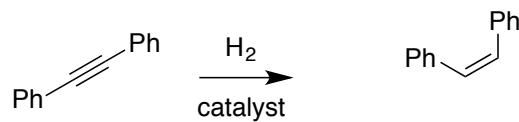
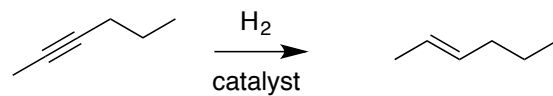
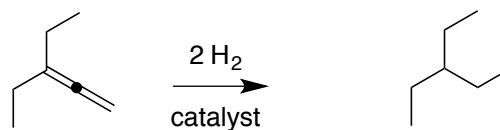
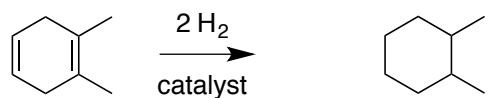
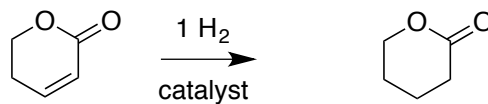
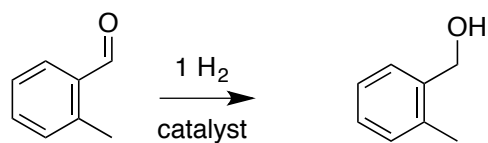
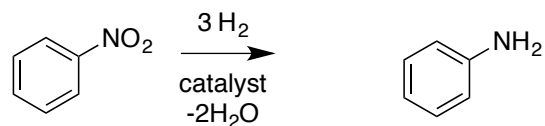
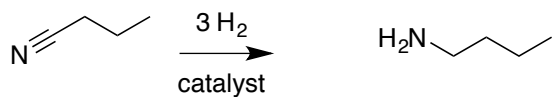
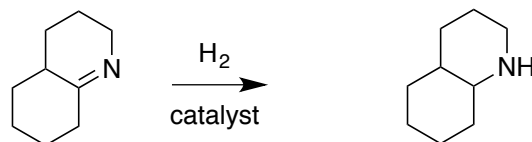
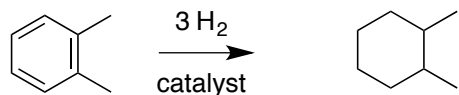
radical mechanism, than a ionic



stabilize
benzyl
more

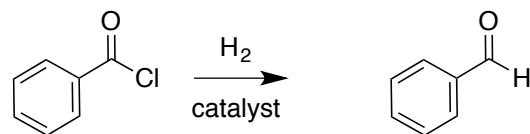
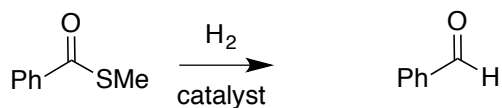
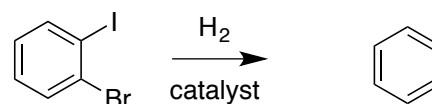
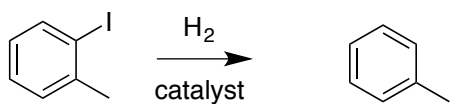
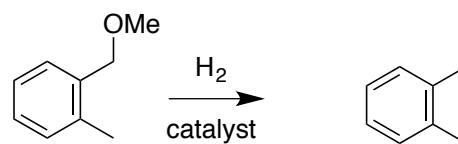
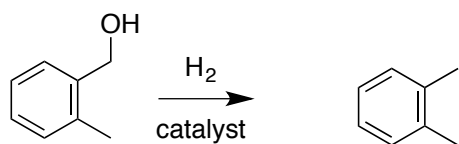
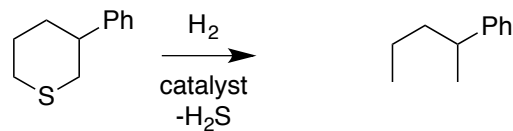
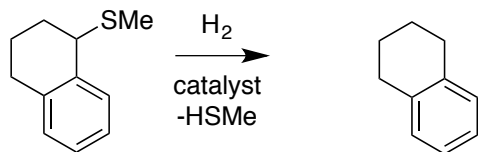
D. Hydrogenation



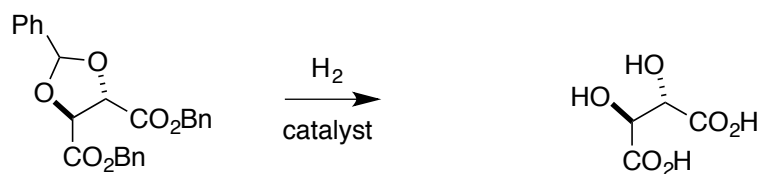
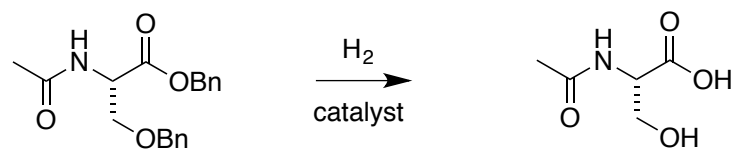
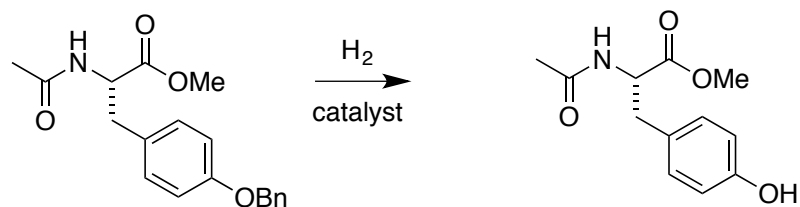
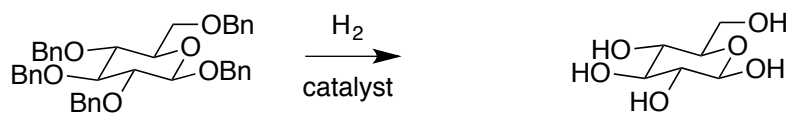


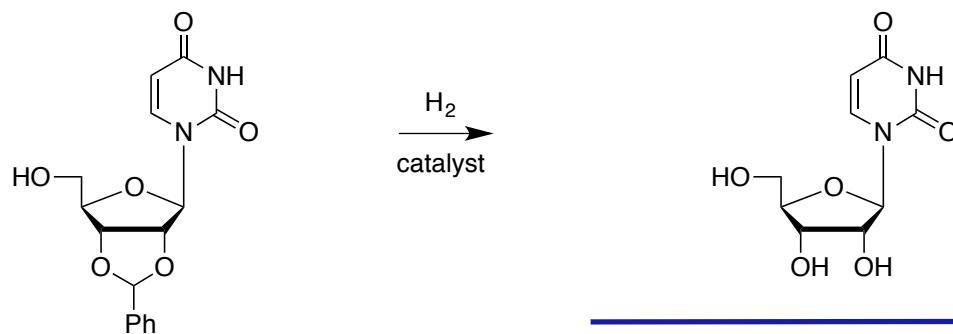
E. Hydrogenolysis

single

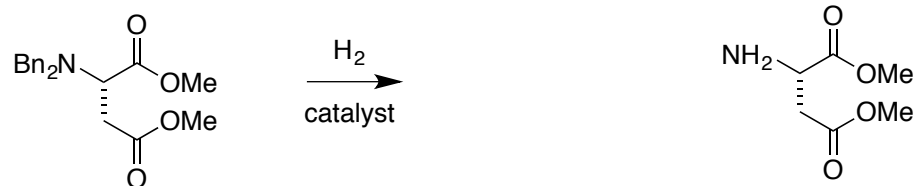


further hydrogenolysis of these products is possible



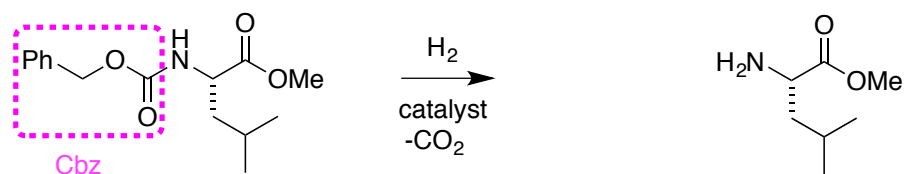


does not reduce the base



harder

Cbz.



F. Double Bond Equivalents

1 and 2 molecules of H₂

4 molecules of H₂

can be calculated

can

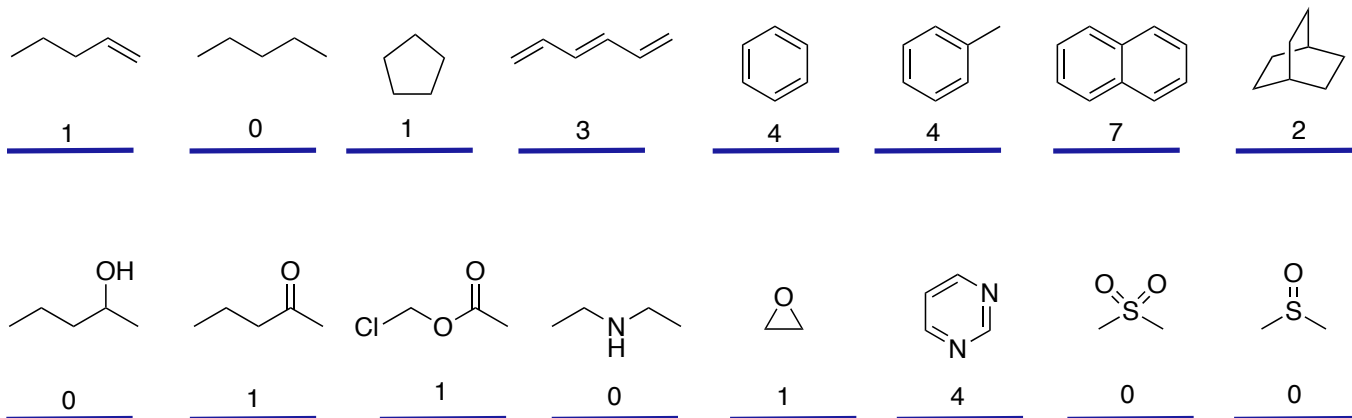
1 and 1, respectively.

(True,

1 and 4

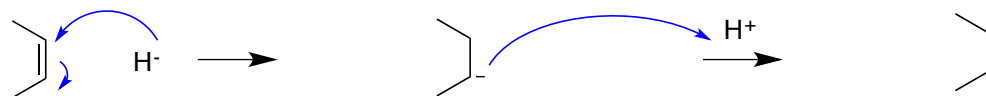
0

True,

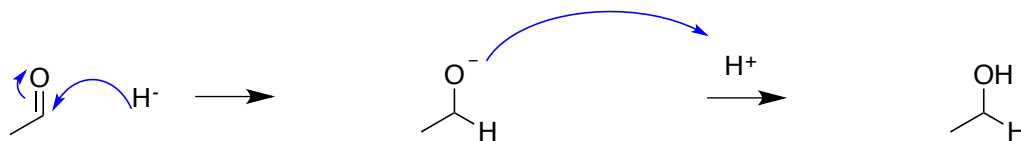


do not apply

G. Hydridic Reductions



hard



easy