

The Following is an answer key to the Migraine worksheet.  
The steps are listed as a, b, c...etc.

**1.0**

- a)  $\text{NaNH}_2$ ,  $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$
- b)  $\text{Li}$ ,  $\text{NH}_3(\text{l})$

**2.0**

- a)  $\text{Cl}_2$ ,  $h\nu$
- b)  $\text{KOH}$ ,  $\text{EtOH}$
- c)  $\text{CH}_2\text{Cl}_2$ ,  $\text{Zn/Cu}$

**3.0**

- a)  $\text{Br}_2$ ,  $\text{CH}_2\text{Cl}_2$
- b)  $2\text{KOH}$ ,  $\text{EtOH}$
- c)  $\text{H}_2$ , Lindlar's Catalyst

**4.0**

- a)  $\text{Li}$ ,  $\text{NH}_3$ , or  $\text{H}_2$  Lindlar's Catalyst
- b) 1.)  $\text{BH}_3$ ,  $\text{THF}$  2.)  $\text{H}_2\text{O}_2$ ,  $\text{NaOH}$ ,  $\text{H}_2\text{O}$

**5.0 The stereochemistry should be inverted on the product**

- a)  $\text{Cl}_2$ ,  $h\nu$
- b)  $\text{KOH}$ ,  $\text{EtOH}$
- c) 1.)  $\text{Hg}(\text{OAc})_2$ ,  $\text{H}_2\text{O}$  2.)  $\text{NaBH}_4$

**6.0**

- a)  $\text{Cl}_2$ ,  $h\nu$
- b)  $\text{KOH}$ ,  $\text{EtOH}$
- c)  $\text{O}_3$ ,  $\text{Zn/H}^+$