CHEM1405 Worksheet 8 – Answers to Critical Thinking Questions

The worksheets are available in the tutorials and form an integral part of the learning outcomes and experience for this unit.

Model 1: Addition to Symmetrical Alkenes and Alkynes
1. Nucleophile
2. Broken = red. Formed = blue.

```
H--Br
\   /  \\
\ /   /
H C=C Br
```

3.
(a) 

(b) 

(c) 

(d) 

(e) 

Model 2: Addition to Unsymmetrical Alkenes and Alkynes
1. 

```
     Br
     \ /  \\
  2-bromopropane  Br
```

2. 

```
  \   /  \\
  \ /   \
  \     \
  \     \
  \     \\
```

3. 2-bromopropane.

4. H₂O

5. Catalyst. First step of the reaction involves addition of the electrophile H⁺ to π bond.
1. The polarity of the bonds in the molecule at the end are so large that it is sometimes considered as ionic, $\text{CH}_3:\text{Mg}^{2+}\text{Br}^-$.  
2. It is almost always $\delta^+$.  
3.  
4. Four (as always)  
5.  
6. See Q3 and Q5.  

**Model 3: Polar Reactions**

**Model 4: Naming Organic Molecules**

1. See below.

2. See above.

3. Yes.

4. See above.
5. See below.

6. (a) 3,4-dimethylpentane  (b) 2,3-dimethylpentane  (c) 3,4-dimethyl-1-pentene

Note that (a) and (b) are in fact the same. The correct name is the one with the lowest numbers in the structure: (b)