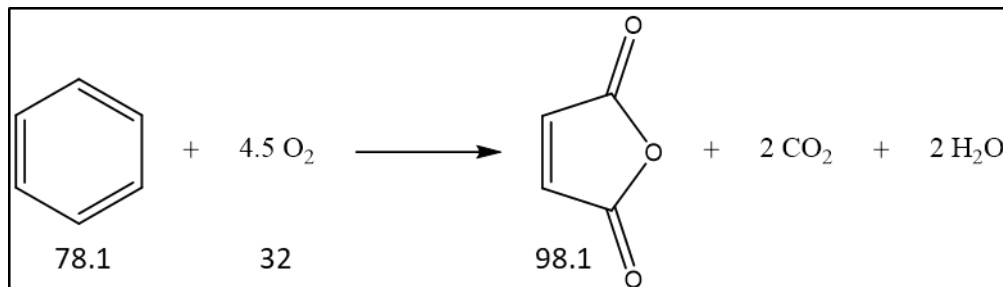
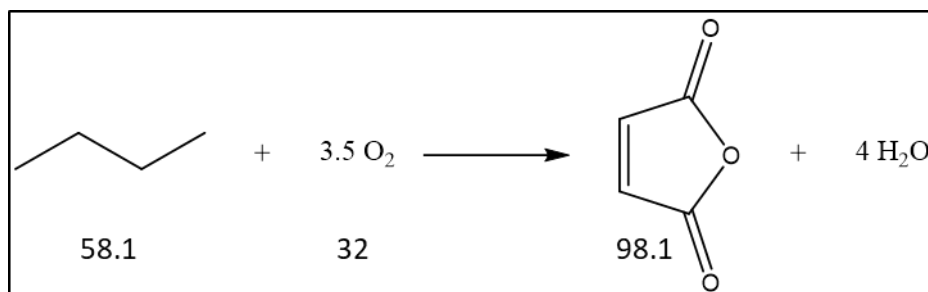


**Exercise 1**

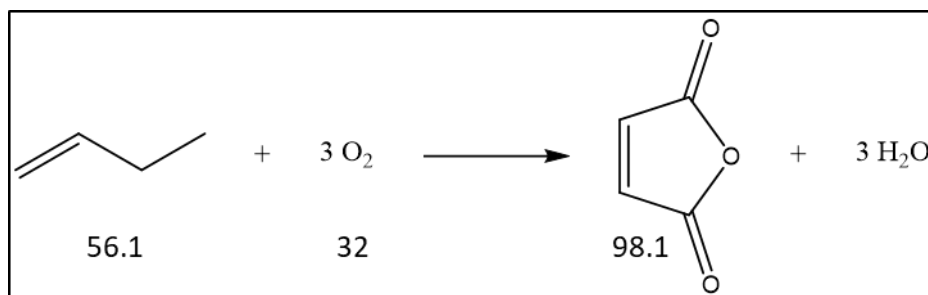
Calculate the atom economy for the following alternative routes to maleic anhydride

**1. Benzene oxidation**

AE= \_\_\_\_\_

**2. Butane oxidation**

AE= \_\_\_\_\_

**3. Butene oxidation:**

AE= \_\_\_\_\_