For each claim or statement, write the null hypothesis $H_0$ and the alternate hypothesis $H_a$. Remember that the null hypothesis is the default hypothesis, the alternate hypothesis is that which is to be proved. The null hypothesis always includes “=”, the alternate hypothesis always excludes “=”.

1. A company claims its 2x4’s are 6’ long on average.
   $H_0 : \quad$ 
   $H_a : \quad$

2. An engine manufacturer claims its engines produce at least 100 hp on average.
   $H_0 : \quad$ 
   $H_a : \quad$

3. An airline company wishes to determine if a particular route with average occupancy $\mu$ is unprofitable. A route must have 60% occupancy to be profitable.
   $H_0 : \quad$ 
   $H_a : \quad$

4. An internet service provider claims its users average 13 hours per week. The company does a survey to determine if the average usage differs from that of its claim.
   $H_0 : \quad$ 
   $H_a : \quad$

5. A drug manufacturer claims that one of its drugs has an average potency of 70%. A sample of 100 capsules is tested to test the claim.
   $H_0 : \quad$ 
   $H_a : \quad$

6. You wish to show that Buicks survive crashes with less damage than Hondas
   $H_0 : \quad$ 
   $H_a : \quad$

7. A psychic claims he can predict coin tosses correctly at least 55% of the time. You toss 100 coins and he correctly predicts 50 of the tosses.
   $H_0 : \quad$ 
   $H_a : \quad$

8. To determine if beef consumption has decreased over the last 10 years, 400 people are interviewed regarding their eating habits now and 10 years ago.
   $H_0 : \quad$ 
   $H_a : \quad$

9. A geneticist states that 75% of his seeds for a variety of peony plants will produce red flowers.
   $H_0 : \quad$ 
   $H_a : \quad$

10. A study compares the employment rate of homeless men with the employment rate for men with homes but who use a meal program.
    $H_0 : \quad$ 
    $H_a : \quad$