Simplify your answers. (You can use a calculator on this worksheet.)

1. Consider a savings account with an annual interest rate $r$ and principle $P$. What is a formula for computing the total account balance after $t$ years if the account earns simple interest?

$$A = \ ?$$

2. Consider an account with an initial principal of $6,000 that earns simple interest at a rate of 5% annually. What would be the balance of the account after
   (a) 20 years?
   (b) 40 years?

3. If an account has a periodic interest rate $i$ and initial principal $P$, what formula could you use to compute the total amount in the account after 1 compounding period?

$$A = \ ?$$

4. Suppose you open a savings account with an interest rate of 8% annually and deposit $3,000.
   (a) What is the principal?
   (b) What is the nominal rate?
   (c) Suppose the account compounds annually.
      i. What is the periodic rate? Number of compounding periods per year?
         $$i = \quad m = \ ?$$
      ii. What is the account balance after 1 year?
         $$A = \ ?$$
      iii. What is the account balance after 2 years?
         $$A = \ ?$$
   (d) Suppose the account compounds every 6 months.
      i. What is the periodic rate? Number of compounding periods per year?
         $$i = \quad m = \ ?$$
      ii. What is the account balance after 1 year?
         $$A = \ ?$$
      iii. What is the account balance after 2 years?
         $$A = \ ?$$