1. (15 points) A dealer sells a car for $25,000. The buyer makes an initial cash payment of $3000 toward the purchase of the car and then finances the balance over 24 months at an annual interest rate of 6%. Payments are made monthly. After the last payment for the first year is made, the buyer decides to sell the car. What is the car loan balance that must be paid if the car is sold? (Assume this is a regular loan and the previous payment has been credited to the loan.)

2. (15 Points) What is the annual equivalent cost of the following cash flow diagram? The interest rate is 12%
3. (20 points) A defibrillator core is needed for an 18-year project. Two cores are being considered for purchase. The interest rate is 8%.

<table>
<thead>
<tr>
<th></th>
<th>Core A</th>
<th>Core B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Purchase Price</td>
<td>$10,000</td>
<td>$5,000</td>
</tr>
<tr>
<td>Salvage Value</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Annual Maintenance</td>
<td>$2,000</td>
<td>$3,000</td>
</tr>
<tr>
<td>Useful Life (years)</td>
<td>18</td>
<td>6</td>
</tr>
</tbody>
</table>

a. Which option for the entire project has the lowest present value (i.e. present cost)? (circle one)
   a) Core A 
   b) Core B

b. What is the difference in the present values (i.e. costs) for the two projects?
   a) $4,000 
   b) $5,000 
   c) $7,536 
   d) $8,754 
   e) $9,701 
   d) $9,508 
   e) $9,701
4. (15 Points) A house is purchased for $150,000 and the value of the house increases each year by 3% (i.e. the value at the end of each year is 3% higher than the value at the beginning of that year). What is the value of the house in 15 years?

5. (15 points) A worker plans to invest $20,000 per year toward retirement. The worker is given an annual interest rate of 10% for her investments. What is the minimum number of years that the worker must invest in order to have at least $1,000,000 in the account when she retires?
6. (15 points) The annual maintenance costs associated with a machine are $2,000 for the first 10 years and $4,000 thereafter. The machine has a life of 25 years. What is the present worth of the annual disbursements if the interest rate is 12%?