1. Consider a bank with the following balance sheet:

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserves $100K</td>
<td>Checking Deposits: $1 m.</td>
</tr>
<tr>
<td>Loans $1 m.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Net worth: $______</td>
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a) What is the bank’s net worth?  
b) If the Fed has a reserve requirement ratio of 10%, is this bank in compliance? Explain.  
c) What is the “leverage ratio” for this bank (i.e. (total assets)/(net worth))?  
d) Assume $50K in deposits are suddenly withdrawn  
   i) Show how this affects the balance sheet (on both sides)  
   ii) Is the bank now in compliance with the minimum reserves discussed in (b)?  
      If not, explain what the bank must do.

2. Suppose in the previous problem (before the withdrawals in part (d)) that 10% of the loan portfolio fails. (For example: 10% of households stop paying their mortgages). These loans are now worthless assets.

   a) Write down the new balance sheet, once these adjustments are made.  
   b) Describe the “perverse incentives” under which the bank’s owners and managers now operate, and the trouble this might lead to.  
   c) Suppose the federal government bought those “toxic assets”, and paid 70% of the face value (even though the real value is zero).  
      i) What is the balance sheet now?  
      ii) Are incentives for the bank manager’s and owners still “perverse”?  