1. Write an expression for the current value at $t = 3$ of payments received as follows: $500$ received at $t = 0$; $700$ received at $t = 3$; four payments of $250$ each, received at $t = 4$, $t = 5$, $t = 8$, and $t = 11$, given that the effective rate of interest is $i$ from time $t = 0$ to time $t = 5$ and $j$ thereafter. (Note: You may wish to define $v_t = \frac{1}{1 + i}$ and $v_j = \frac{1}{1 + j}$, although this isn’t required). 

(6 points)
2. You are given a choice between two investment funds:

**Fund A** credits a nominal rate of discount of 8%, convertible monthly.

**Fund B** credits a nominal rate of interest $i^{(4)}$, convertible quarterly.

Determine $i^{(4)}$ such that you will be equally happy with either fund. (6 points)
3. Complete the following table. Please show both a formula and a numerical evaluation. No timeline required for this problem.

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Present value at $t=2$ of $1,000 at $t=6$</th>
<th>Accumulated value at $t=6$ of $1000 at t=3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>4% simple interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6% simple discount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8% nominal discount, compounded semiannually</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Express your answers to the nearest penny. (6 points)
4. Express $i^{(12)}$ in terms of $d^{(4)}$ (5 points)

5. Given $a(t) = at^2 + b$ and also that $a(3) = 1.72$, find the accumulated value at time $t = 10$ of 100 invested at time $t = 5$. (6 points)
6. You are given: \( i^{(m)} = 0.0987654321 \)
\( d^{(m)} = 0.0981949458 \)

Determine \( m \). \( (6 \text{ points}) \)
7. You are given $\delta_t = \frac{2}{t-1}$ for $2 \leq t \leq 10$. Calculate the equivalent nominal rate of discount compounded semiannually for the one year interval from $t = 3$ to $t = 4$. (8 points)