2. \( i = \frac{r}{m} \)

For \( r = 0.06 \) and \( m = 12 \), we have:
\[
\frac{0.06}{12} = 0.005
\]

For \( m = 12 \) and \( i = 6 \), we have:
\[
n = mt = (12)(6) = 72 \text{ periods}
\]

10. \( n = 25, i = 0.04, \ PMT = 100 \)
\[
FV = PMT \frac{(1+i)^n - 1}{i} = 100 \frac{(1+0.04)^{25} - 1}{0.04} = 4,164.59
\]

12. \( FV = 2,500, \ n = 10, \ i = 0.08 \)
\[
PMT = 2,500 \frac{0.08}{(1+0.08)^{10} - 1} = 172.57
\]

14. \( FV = 8,000, \ i = 0.04, \ PMT = 500 \)
\[
FV = PMT \frac{(1+i)^n - 1}{i} = 8,000 \frac{(1+0.04)^n - 1}{0.04} = 8,000 \frac{(1.04)^n - 1}{0.04} = 164
\]
\[
n \ln(1.04) = 164 \ln(1.04) \approx 13 \text{ periods}
\]

22. \( PMT = 1,000, \ n = 15(12) = 180, \ i = \frac{r}{12} = \frac{0.0725}{12} \)
\[
FV = 1,000 \frac{(1 + \frac{0.0725}{12})^{180} - 1}{0.0725} = 323,943.07
\]

Total deposits = 1,000(180) = 180,000.
Interest = \( FV - 180,000 = 143,943.07 \)

28. \( FV = 120,000, \ n = 15(2) = 30, \ r = 6.8\% = 0.068, \ i = \frac{0.068}{2} = 0.034 \)
\[
PMT = FV \frac{i}{(1+i)^n - 1} = 120,000 \frac{0.034}{(1+0.034)^{30} - 1} = 2,363.07
\]

30. \( PMT = 2,000, \ i = \frac{0.079}{4} = 0.01975, \ n = 2(4) = 8 \)
\[
FV = PMT \frac{(1+i)^n - 1}{i} = 2,000 \frac{(1.01975)^n - 1}{0.01975}
\]
\[
n = 1: \ FV = 2,000
n = 2: \ FV = 4,039.50
\]
\[
\text{Interest: 4,039.50 - 2,000 = 2,039.50}
\]
\[
n = 3: \ FV = 6,119.28
\]
\[
\text{Interest: 6,119.28 - 4,039.50 = 2,039.50}
\]
\[
n = 4: \ FV = 8,240.14
\]
\[
\text{Interest: 8,240.14 - 6,119.28 = 2,120.86}
\]
\[
n = 5: \ FV = 10,402.88
\]
\[
\text{Interest: 10,402.88 - 8,240.14 = 2,162.74}
\]
\[
n = 6: \ FV = 12,608.34
\]
\[
\text{Interest: 12,608.34 - 10,402.88 = 2,205.46}
\]
\[
n = 7: \ FV = 14,857.35
\]
\[
\text{Interest: 14,857.35 - 12,608.34 = 2,249.01}
\]
\[
n = 8: \ FV = 17,150.78
\]

Balance Sheet

<table>
<thead>
<tr>
<th>Period</th>
<th>Amount</th>
<th>Interest</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$2,000.00</td>
<td>$0.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>2</td>
<td>$2,000.00</td>
<td>$39.50</td>
<td>$4,039.50</td>
</tr>
<tr>
<td>3</td>
<td>$2,000.00</td>
<td>$79.78</td>
<td>$6,119.28</td>
</tr>
<tr>
<td>4</td>
<td>$2,000.00</td>
<td>$120.86</td>
<td>$8,240.14</td>
</tr>
<tr>
<td>5</td>
<td>$2,000.00</td>
<td>$162.74</td>
<td>$10,402.88</td>
</tr>
<tr>
<td>6</td>
<td>$2,000.00</td>
<td>$205.46</td>
<td>$12,608.34</td>
</tr>
<tr>
<td>7</td>
<td>$2,000.00</td>
<td>$249.01</td>
<td>$14,857.35</td>
</tr>
<tr>
<td>8</td>
<td>$2,000.00</td>
<td>$293.43</td>
<td>$17,150.78</td>
</tr>
</tbody>
</table>

32. \( FV = PMT \frac{(1+i)^n - 1}{i} = \frac{500}{4} \left(\frac{1+0.08}{4}\right)^4 - 1 \) (after one year)
\[
= 500 \frac{(1+0.02)^4 - 1}{0.02} \approx 2,060.80
\]
33. \[ PMT = \$1,000 \]
\[ r = 6.4\% = 0.064 \]
\[ m = 1 \]
\[ n = 12 \]
\[ FV = 1,000 \cdot \frac{(1 + 0.064)^{12} - 1}{0.064} = 17,269.21764 \]
\[ \text{compounding interest} \quad A = P (1+i)^n \]
\[ = 17,269.21764 \cdot (1 + 0.064)^{30} = \$111,050 \]
\[ \text{26th - 35th birthday (12 years)} \]
\[ \text{36th - 65th birthday (30 years)} \]

34. \[ PMT = \$1,000, \ r = 6.4\% = 0.064, \ m = 1, \ n = 30. \]
\[ FV = 1,000 \frac{(1 + 0.064)^{30} - 1}{0.064} = \$84,852.51 \]

40. \[ PMT = \$2,000, \ r = 6.6\% = 0.066, \ m = 12, \ i = \frac{0.066}{12}. \]
\[ FV = \$100,000. \]
\[ FV = PMT \frac{(1+i)^n - 1}{i} \]