1. What is the expected return on a portfolio comprised of $4,000 in stock M and $6,000 in stock N if the economy enjoys a boom period?

<table>
<thead>
<tr>
<th>State of Economy</th>
<th>Probability of State of Economy</th>
<th>Returns if State Occurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boom</td>
<td>10%</td>
<td>Stock M: 18%</td>
</tr>
<tr>
<td>Normal</td>
<td>75%</td>
<td>Stock N: 10%</td>
</tr>
<tr>
<td>Recession</td>
<td>15%</td>
<td>Stock M: 7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stock N: 8%</td>
</tr>
</tbody>
</table>

\[
E(r)_{Boom} = \left\{ \frac{4,000}{(4,000 + 6,000) \times .18} \right\} + \left\{ \frac{6,000}{(4,000 + 6,000) \times .10} \right\} = .072 + .06 = .132 = 13.2\% 
\]

2. What is the portfolio variance if 30% is invested in stock S and 70% is invested in stock T?

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<th>Returns if State Occurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boom</td>
<td>40%</td>
<td>Stock S: 12%</td>
</tr>
<tr>
<td>Normal</td>
<td>60%</td>
<td>Stock T: 20%</td>
</tr>
</tbody>
</table>

\[
E(r)_{Boom} = (.30 \times .12) + (.70 \times .20) = .036 + .14 = .176
\]
\[
E(r)_{Normal} = (.30 \times .06) + (.70 \times .04) = .018 + .028 = .046
\]
\[
E(r)_{Portfolio} = (.40 \times .176) + (.60 \times .046) = .0704 + .0276 = .098
\]
\[
Var_{Portfolio} = [.40 \times (.176 - .098)^2] + [.60 \times (.046 - .098)^2] = .0024336 + .0016224 = .004056
\]

3. Your portfolio is comprised of 30% of stock X, 50% of stock Y, and 20% of stock Z. Stock X has a beta of .64, stock Y has a beta of 1.48, and stock Z has a beta of 1.04. What is the beta of your portfolio?

\[
\text{Beta}_{Portfolio} = (.30 \times .64) + (.50 \times 1.48) + (.20 \times 1.04) = .192 + .74 + .208 = 1.14
\]

4. The market has an expected rate of return of 9.8%. The long-term government bond is expected to yield 4.5% and the U.S. Treasury bill is expected to yield 3.4%. The inflation rate is 3.1%. What is the market risk premium?

\[
\text{Risk premium} = 9.8\% - 3.4\% = 6.4\%
\]

5. The risk-free rate of return is 4% and the market risk premium is 8%. What is the expected rate of return on a stock with a beta of 1.28?

\[
E(r) = .04 + (1.28 \times .08) = .1424 = 14.24\%
\]