Quantitative Risk Assessment

Single loss expectancy (SLE): Total loss expected from a single incident
Annual rate of occurrence (ARO): Number of times an incident is expected to occur in a year
Annual loss expectancy (ALE): Expected loss for a year

\[
\text{ALE} = \text{SLE} \times \text{ARO}
\]

Safeguard value: Cost of a safeguard or control

**Scenario 1:** Richman Investments provides high-end smartphones to several employees. The value of each smartphone is $500, and approximately 1,000 employees have these company-owned devices. In the past year, employees have lost or damaged 75 smartphones.

With this information, calculate the following:

<table>
<thead>
<tr>
<th>SLE</th>
<th>ARO</th>
<th>ALE</th>
</tr>
</thead>
</table>

Richman is considering buying insurance for each smartphone. Use the ALE to determine the usefulness of this safeguard. For example, Richman could purchase insurance for each device for $25 per year. The safeguard value is $25 \times 1,000$ devices, or $25,000. It is estimated that if the insurance is purchased, the ARO will decrease to 5. Should the company purchase the insurance?

**Determine the effectiveness of the safeguard (fill in blank boxes):**

<table>
<thead>
<tr>
<th>Current ALE</th>
<th>ARO with control</th>
<th>ALE with control</th>
<th>Savings with control (current ALE - ALE with control)</th>
<th>Safeguard value (cost of control)</th>
<th>Realized savings (savings with control - safeguard value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
<td>$25,000</td>
<td></td>
</tr>
</tbody>
</table>

Should Richman buy the insurance? Explain your answer.