1.1.1) The Geometric Mean for the speed is 2.151446 and the Geometric Mean for the Power consumption is 1.616064
1.1.2) The Pentium Pro ran 203 times faster than its predecessor the Pentium.
1.1.3) The clock rate is 213 times greater and the power consumption is 28.7 times greater.
1.1.4) The energy stored in a capacitor is about \(0.5 CV^2\); the capacitive loads are listed below

<table>
<thead>
<tr>
<th>Load</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>80286</td>
<td>1.475805</td>
</tr>
<tr>
<td>80386</td>
<td>1.833576</td>
</tr>
<tr>
<td>80486</td>
<td>2.191347</td>
</tr>
<tr>
<td>Pentium</td>
<td>4.516857</td>
</tr>
<tr>
<td>Pentium Pro</td>
<td>16.01902</td>
</tr>
<tr>
<td>Pentium 4 (Willamaette)</td>
<td>56.92145</td>
</tr>
<tr>
<td>Pentium 4 (Prescott)</td>
<td>92.126</td>
</tr>
<tr>
<td>Core 2</td>
<td>90.57895</td>
</tr>
</tbody>
</table>

1.1.5) The largest change was a 47% decrease from the Pentium pro to the Pentium 4.
1.1.6) The geometric mean of the voltage ratio since the Pentium is 0.738727959.
Section 3:

The assembly program computes the following equation, as long as \((a_0 \times a_1 - a_2)\) is an even number. If it is not an even number, the loop continues forever. Registers \(a_0, a_1,\) and \(a_2\) are used as operands and \(v_0\) is used to store the result.

\[
v_0 = \frac{[(a_0 \times a_1)^2 - (a_2)^2]}{2}
\]

Work:

Loop1:
\[
t0 = a0 \times a1
\]

middle:
\[
t2 = a0 \times a1 + a2
\]
\[
t3 = a0 \times a1 - a2
\]

Loop2:
\[
v0 = t2 \times t3/2 = (a0 \times a1 + a2) \times (a0 \times a1 - a2)/2 = [(a0*a1)^2 - a2^2]/2
\]