1) $26 = 111111 \land \overline{\mathbf{111111}}$

$75 = 111111 \land \overline{\mathbf{111111}}$

$26 \cdot 75 : \underline{1} \phantom{1}$

$\underline{111111} \land \overline{\mathbf{111111}}$

$\sqrt{111111} \land \overline{\mathbf{111111}}$

$\sqrt{\overline{\mathbf{111111}}} \land \overline{\mathbf{111111}}$

$\sqrt{\overline{\mathbf{111111}}} \land \overline{\mathbf{111111}}$

$\sqrt{\overline{\mathbf{111111}}} \land \overline{\mathbf{111111}}$

$\overline{\mathbf{111111}} \land \overline{\mathbf{111111}}$

$\overline{\mathbf{111111}} \land \overline{\mathbf{111111}}$

Area of circle $x \cdot (d - \frac{1}{2}d)^2 = (18 - 2)^2 = 256$ cubits$^2$

3) Otto Neugebauer: $\overline{\mathbf{E}, \mathbf{V}}$

Pythagoras of Samos: $\overline{\mathbf{B}, \mathbf{II}}$

Jean-François Champollion: $\overline{\mathbf{D}, \mathbf{IV}}$

Theodorus of Cyrene: $\overline{\mathbf{C}, \mathbf{III}}$

Henni Cappola: $\overline{\mathbf{E}, \mathbf{VI}}$

Ahmes: $\overline{\mathbf{A}, \mathbf{I}}$
6) The line: 65 97 5

The meaning: 65 and 97 are b and c of some Pythagorean triple. (5 is a line number)

\[ a^2 = c^2 - 5^2 = 97^2 - 65^2 \]
\[ 97^2 = 9409 \]
\[ -65^2 = -4225 \]
\[ \frac{9409 - 4225}{5184} = 72^2 \]

and we get: \( a \approx 72 \), and \( 72^2 + 65^2 = 97^2 \)

7) Want primitive Pythagorean triples \((x,y,z)\) with \( z = 84 \)

Known: an integer triples are \((2st, s^2-t^2, s^2+t^2)\)

Since our triples should be primitive, they cannot all be even (or else we would factor out a 2). Moreover, we must have 2 odds in order to have \( x^2+y^2 \equiv 2 \pmod{4} \).

Thus we must have \( x^2 + y^2 = 84 \) in exactly one way (so we will not be able to get \( x=5^2-t^2 = 25-t^2 \) \( \leq 84 \), so we can have:

<table>
<thead>
<tr>
<th>t</th>
<th>s^2</th>
<th>t^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>49</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>441</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>392</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>49</td>
<td>36</td>
</tr>
</tbody>
</table>

Note we must have \( s > t \), so this is it.

So we get: \((84, 1763, 1765)\)

\((84, 437, 445)\)

\((84, 383, 401)\)

\((84, 13, 85)\)

Disclaimer: I believe all of the above answers are correct. However, I make no assurances that they are. The best way to check is to do the problems yourself and compare work.

-Andy