Standard Exercise
on the Euclidean Algorithm

todo: find the greatest common divisor of 24 and 105.

Note: The prime factorization of 24 is 2x2x2x3, and the prime factorization of 105 is 3x5x7. Their greatest common divisor is therefore obviously 3. However, we wish to obtain this result by means of the Euclidean Algorithm (in which the remainder is divided into the divisor until a remainder of 0 is obtained), and will use this prior knowledge of the answer as a check on our work.

procedure:

$$\begin{array}{r} 4 \\ 24\overline{)105} \\ 96 \\ \hline 9 \end{array} \qquad \begin{array}{r} 2 \\ 9\overline{)24} \\ 18 \\ \hline 6 \end{array} \qquad \begin{array}{r} 1 \\ 6\overline{)9} \\ 6 \\ \hline 3 \end{array} \qquad \begin{array}{r} 2 \\ 3\overline{)6} \\ 6 \\ \hline 0 \end{array}$$

$\therefore$ 3 is their greatest common divisor.

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