# Latihan Soal Algoritma Euklid, Representasi Bilangan Bulat dan Matriks

**33.** Use the Euclidean algorithm to find

**a)** gcd(12, 18).
**b)** gcd(111, 201).
**c)** gcd(1001, 1331).
**d)** gcd(12345, 54321).
**e)** gcd(1000, 5040).
**f)** gcd(9888, 6060).

**35.** How many divisions are required to find gcd(34, 55) using the Euclidean algorithm?

**25.** Use the Euclidean algorithm to find the greatest common divisor of 10,223 and 33,341.

**3.** Convert the binary expansion of each of these integers to a decimal expansion.

**a)** $(1\ 1111)_2$ **b)** $(10\ 0000\ 0001)_2$

**c)** $(1\ 0101\ 0101)_2$ **d)** $(110\ 1001\ 0001\ 0000)_2$

**21.** Find the sum of each of these pairs of numbers. Express your answers as a binary expansion.

**a)** $(100\ 0111)_2, (111\ 0111)_2$

**b)** $(1110\ 1111)_2, (1011\ 1101)_2$

**c)** $(10\ 1010\ 1010)_2, (1\ 1111\ 0000)_2$

**d)** $(10\ 0000\ 0001)_2, (11\ 1111\ 1111)_2$

**27.** Let

$$\mathbf{A} = \begin{bmatrix} 1 & 0 & 1 \\ 1 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad \text{and} \quad \mathbf{B} = \begin{bmatrix} 0 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 0 & 1 \end{bmatrix}.$$

Find

**a)** $\mathbf{A} \vee \mathbf{B}$. **b)** $\mathbf{A} \wedge \mathbf{B}$. **c)** $\mathbf{A} \odot \mathbf{B}$.

**28.** Find the Boolean product of $\mathbf{A}$ and $\mathbf{B}$, where

$$\mathbf{A} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 \\ 1 & 1 & 1 & 1 \end{bmatrix} \quad \text{and} \quad \mathbf{B} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \\ 1 & 1 \\ 1 & 0 \end{bmatrix}.$$