OPERASI MATEMATIKA LANJUT

*Home work*

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**Soal:**

Lakukan operasi perkalian secara linier (4bit) antara angka 14 dikalikan dengan 15:

1. Hitung dengan menggunakan cara berpikir manusia.
2. Hitung dengan menggunakan cara berpikir computer (ALU)
3. Apakah hasil a = b ?

**Jawab:**

1. Perhitungan menggunakan cara berpikir manusia.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | l | l | l | 0 |  | (14) | |
|  |  |  |  | l | l | l | l | x | (15) | |
|  |  |  |  | l | l | l | 0 |  | |  |
|  |  |  | l | l | l | 0 |  |  | |  |
|  |  | l | l | l | 0 |  |  |  | |  |
|  | l | l | l | 0 |  |  |  | + | |  |
| l | l | 0 | l | 0 | 0 | l | 0 |  | |  |

1. Perhitungan menggunakan cara berpikir computer (ALU)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | | 0 |  | 0 | 0 | 0 | 0 |  | I | I | I | I |  | I | I | I | 0 |  |
|  |  | n = 4 Q0 = 1 | | | | | | | | | | | | | | | | | |
| 1 |  | | 0 |  | I | I | I | 0 |  | I | I | I | I |  | I | I | I | 0 |  |
|  |  | | 0 |  | 0 | I | I | I |  | 0 | I | I | I |  | I | I | I | 0 |  |
|  |  | n = 3 Q0 = 1 | | | | | | | | | | | | | | | | | |
| 2 |  | | I |  | 0 | I | 0 | I |  | 0 | I | I | I |  | I | I | I | 0 |  |
|  |  | | 0 |  | I | 0 | I | 0 |  | I | 0 | I | I |  | I | I | I | 0 |  |
|  |  | n = 2 Q0 = 1 | | | | | | | | | | | | | | | | | |
| 3 |  | | I |  | I | 0 | 0 | 0 |  | I | 0 | I | I |  | I | I | I | 0 |  |
|  |  | | 0 |  | I | I | 0 | 0 |  | 0 | I | 0 | I |  | I | I | I | 0 |  |
|  |  | n = 1 Q0 = 1 | | | | | | | | | | | | | | | | | |
| 4 |  | | I |  | I | 0 | I | 0 |  | 0 | I | 0 | I |  | I | I | I | 0 |  |
|  |  | | 0 |  | I | I | 0 | I |  | 0 | 0 | I | 0 |  | I | I | I | 0 |  |

1. Perhitungan dengan cara berfikir manusia (a) dan cara berfikir *computer* atau ALU(b) menghasilkan hasil hitung yang sama antar keduanya, yaitu sama-sama mempunyai hasil akhir: 1101 0010 **(a = b)**