1. **The method of successive divisions/multiplications**

* **it is recommended for *h < b*, *b* –source base and *h*- destination base.**
* **calculations in the source base**

**Integer part**: **successive divisions** by the destination base (***h***) are performed

* the process of successive divisions ends when 0 is obtained as quotient.
* the remainders, in the reverse order, are the digits of the new representation in base *h.*

**Fractional part**: **successive multiplications** by the destination base (***h***) are performed

* the fractional part is multiplied by ***b*** obtaining a number with an integer part and a fractional one;
* we continue with the multiplication of this new fractional part,...
* the process of the successive multiplications continues until one of the following conditions is satisfied:

a) the fractional part becomes 0;

b) an established number of digits of the fractional part were calculated;

c) periodicity is obtained.

* the integer parts, in the order of obtaining them during the multiplications process, are the digits of the fractional part in the destination representation.

**Example 6: with a precision of 3 digits at the fractional part in the destination representation**

**, (8) = ,  (5)**

**Conversion of the integer part**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| |  / |  /    /    /  r | |  / |  /    /    /  r | |  / |  /    /    /  r | |  / |  /    /    /  r | |  / |  /    /    /  r |

**Calculations:**

**Conversion of the fractional part**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **0,** |  |  | **\*** |  |  |  |  | **\*** |  |  |  |  | **\*** |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Calculations:**

**Example 7: with a precision of 3 digits at the fractional part in the destination representation**

**, (16) = ,  (7)**

**Conversion of the integer part**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| |  / |  /    /    /  r | |  / |  /    /    /  r | |  / |  /    /    /  r | |  / |  /    /    /  r | |  / |  /    /    /  r |

**Calculations:**

**Conversion of the fractional part**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **0,** |  |  | **\*** |  |  |  |  | **\*** |  |  |  |  | **\*** |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Calculations:**