

Домашнее задание по Дискретной математике №7

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A = 4.2

B = 0.34

1. Формат Ф1

$$A = (4.2)_{10} = (4,333333)_{16} = (0,4333333)_{16} \cdot 16^1$$

0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	1	0	0	1	1
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$$B = (0.34)_{10} = (0,570A3D)_{16} = (0,570A3D)_{16} \cdot 16^0$$

0	1	0	0	0	0	0	0	0	1	0	1	0	1	1	1	0	0	0	1
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$$\text{SignC} = \text{SignA} \oplus \text{SignB}.$$

$$X_A = P_A + d; X_B = P_B + d;$$

$$X_C = X_A + X_B - d;$$

$$P_C + d = \frac{P_A + d + P_B}{P_C} + d - d.$$

$$\begin{array}{rcl} X_A & = & 1000001 \\ & + & \\ X_B & = & 1000000 \\ \hline X_A + X_B & = & 10000001 \\ & - & \\ d & = & 1000000 \\ \hline X_C & = & 1000001 \end{array}$$

$$P_C = 1$$

№	Операнды	СЧП (старшие разряды)	В/СЧП (младшие разряды)	Признак коррекции
0	СЧП	0000000000000000	010101110001	0
1	$[M_A]_{\text{пр}}$	000010000110011	M_A	0

2. Формат Ф2

$$A = (4.2)_{10} = (4,333333)_{16} = (0,1000011001100110011)_2 \cdot 2^3$$

0	1	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0	0	1	1	0
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$$B = (0.34)_{10} = (0,570A3D)_{16} = (0,10101110000101)_2 \cdot 2^{-1}$$

0	0	1	1	1	1	1	1	1	0	1	0	1	1	1	0	0	0	0	1
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$$X_A = 10000011$$

+

$$X_B = 01111111$$

$$X_A + X_B = 100000010$$

-

$$d = 10000000$$

$$X_C = 10000010$$

$$P_C = 2$$

№	Операнды	СЧП (старшие разряды)	В/СЧП (младшие разряды)	Признак коррекции
0	СЧП	00000000000000000000	1 0 1 0 1 1 1 0 0 0 0 1	0
	$[M_A]_{\text{пр}}$	000001000001100110		
	$[0M_A]_{\text{пр}}$	00000000000000000000		
1	СЧП	000001000001100110	1 0 1 0 1 1 1 0 0 0 0 1	1
	СЧП->4	0000000000100001100	0 1 1 0 1 0 1 0 1 1 1 0	
	$[2M_A]_{\text{пр}}$	000010000011001100		
	$[-4M_A]_{\text{доп}}$	11101111001101000		
2	СЧП	111101111101110100	0 1 1 0 1 0 1 0 1 1 1 0	1

	СЧП->4	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	0	1	0	1	0	
	$[-M_A]_{\text{доп}}$	1	1	1	1	1	0	1	1	1	1	0	0	1	1	0	1	0		$-M_A$	$-4M_A$		
	$[-4M_A]_{\text{доп}}$	1	1	1	0	1	1	1	1	0	0	1	1	0	1	0	0	0					
3	СЧП	1	1	1	0	1	0	1	0	0	1	1	1	1	1	0	1	1	0	1	0	1	0
	СЧП->4	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1	1	1	0	1	1	0	0
	$[M_A]_{\text{пр}}$	0	0	0	0	0	1	0	0	0	0	1	1	0	0	1	1	0		M_A			
	СЧП	0	0	0	0	0	1	0	1	1	0	1	1	0	1	0	1	0	0	1	1	0	

$$X_c = X_c - 1$$

$$C = (0,101101101011)_2 \cdot 2^1 = 1,42724609.$$

Определим абсолютную и относительную погрешности результата:

$$\Delta C = 1,428 - 1,42724609 = 0,00075391$$

$$\delta C = \left| \frac{0,00075391}{1,428} \right| \cdot 100\% = 0,05279456\%$$

Погрешности результатов вызваны неточным представлением операндов. В формате Ф2 операнды представлены точнее и погрешность меньше.