

**ДЗ 7 Храбров Артём Алексеевич Р3115. Вариант 77**

**A = 4.9**

**B = 0.11**

## 1. Формат Ф1

$$A = (4.9)_{10} = (4, E66666)_{16} = (0, 4E66666)_{16} \cdot 16^1$$

0	1	0	0	0	0	0	1	0	1	0	0	1	1	1	0	0	1	1	0
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$$B = (0.11)_{10} = (0,1C28F6)_{16} = (0,1C28F6)_{16} \cdot 16^0$$

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

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

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

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

$$X_A = \begin{matrix} & 1 & 0 & 0 & 0 & 0 & 1 \\ + & & & & & & \end{matrix}$$

$$X_B = +1000000$$

$$X_A + X_B = \overline{10000001}$$

$$d = 1000000$$

$$X_c = 1000001$$

$$P_C = 1$$

№	Операнды	СЧП (старшие разряды)	В/СЧП (младшие разряды)	Признак коррекции			
0	СЧП	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 1 1 1 0 0 0 0 0 1 1 1	0			
1	$[-M_A]_{\text{доп}}$	1 1 1 1 1 0 1 1 0 0 0 1 1 0 1 0	$-M_A$				1
	СЧП	1 1 1 1 1 0 1 1 0 0 0 1 1 0 1 0	0 0 0 0 1 1 1 0 0 0 0 0 1 1 1				
	СЧП->2	1 1 1 1 1 1 1 0 1 1 0 0 0 1 1 0	1 0 0 0 0 0 1 1 1 0 0 0 0 0				
2	$[M_A]_{\text{пр}}$	0 0 0 0 1 0 0 1 1 1 0 0 1 1 1 0	$M_A$				0
	СЧП	0 0 0 0 0 1 1 1 0 1 0 1 1 0 0	1 0 0 0 0 1 1 1 0 0 0 0				
	СЧП->2	0 0 0 0 0 0 0 1 1 1 0 1 0 1 1	0 0 1 0 0 0 0 1 1 1 0 0				
3	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-				0
	СЧП	0 0 0 0 0 0 0 1 1 1 0 1 0 1 1	0 0 1 0 0 0 0 1 1 1 0 0				
	СЧП->2	0 0 0 0 0 0 0 0 0 1 1 1 0 1 0	1 1 0 0 1 0 0 0 0 1 1 1				
4	$[-M_A]_{\text{доп}}$	1 1 1 1 1 0 1 1 0 0 0 1 1 0 1 0	$-M_A$				1
	СЧП	1 1 1 1 1 0 1 1 0 1 0 1 0 1 0 0	1 1 0 0 1 0 0 0 0 1 1 1				
	СЧП->2	1 1 1 1 1 1 1 0 1 1 0 1 0 1 0 1	0 0 1 1 0 0 1 0 0 0 0 1				
5	$[2M_A]_{\text{пр}}$	0 0 0 1 0 0 1 1 1 0 0 1 1 0 0	$2M_A$				0
	СЧП	0 0 0 1 0 0 0 1 0 1 0 0 0 0 1	0 0 1 1 0 0 1 0 0 0 0 1				
	СЧП->2	0 0 0 0 0 1 0 0 0 1 0 1 0 0 0	0 1 0 0 1 1 0 0 1 0 0 0				
6	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-				0
	СЧП	0 0 0 0 0 1 0 0 0 1 0 1 0 0 0	0 1 0 0 1 1 0 0 1 0 0 0				

	СЧП->2	00000001000101000010001001100010	
7	СЧП	000000010001010000100010001001100010	0
	М <sub>С</sub>	000000010001010000100010001001100010	

$$X_C = X_C - 1$$

$$C^* = (0,8A1)_{16} \cdot 16^0 = 0,53930664.$$

Определим абсолютную и относительную погрешности результата:

$$\Delta C = 0,539 - 0,53930664 = -0,00030664$$

$$\delta C = \left| \frac{-0,00030664}{0,539} \right| \cdot 100\% = 0,05689065\%$$

## 2. Формат Ф2

$$A = (4.9)_{10} = (4,E66666)_{16} = (0,100111001100110011)_2 \cdot 2^3$$

0	1	0	0	0	0	1	1	0	0	1	1	1	0	0	1	1	0	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

$$B = (0.11)_{10} = (0,1C28F6)_{16} = (0,1110000101001)_2 \cdot 2^{-3}$$

0	0	1	1	1	1	0	1	1	1	0	0	0	0	1	0	1	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

$$\begin{array}{r} X_A = + \quad 10000011 \\ X_B = \quad 01111101 \\ \hline X_A + X_B = 10000000 \\ d = - \quad 10000000 \\ \hline X_C = \quad 10000000 \\ P_C = 0 \end{array}$$

№	Операнды	СЧП (старшие разряды)	В/СЧП (младшие разряды)	Признак коррекции
0	СЧП	00000000000000000000	11100000101000	0
	[4M <sub>A</sub> ] <sub>пр</sub>	000100111100110100		
	[0M <sub>A</sub> ] <sub>пр</sub>	000000000000000000		
1	СЧП	000100111100110100	11100000101000	0
	СЧП->4	000000010011100111	01000111100001	
	[M <sub>A</sub> ] <sub>пр</sub>	000001001111001101		
	[0M <sub>A</sub> ] <sub>пр</sub>	000000000000000000		
2	СЧП	00000011100011000000	01000111100001	1
	СЧП->4	000000000011000100	00000010001110	
	[2M <sub>A</sub> ] <sub>пр</sub>	000010011110011010		
	[-4M <sub>A</sub> ] <sub>доп</sub>	11110111000111001100		
3	СЧП	1111101110100101010	00000001000111	0
	СЧП->4	11111111011010010	1010000000100	
	[M <sub>A</sub> ] <sub>пр</sub>	000001001111001101		
	СЧП	000001000100111111	10100000000100	

$$C^* = (0,100010011111)_2 \cdot 2^0 = 0,53881836.$$

Определим абсолютную и относительную погрешности результата:

$$\Delta C = 0,539 - 0,53881836 = 0,00018164$$

$$\delta C = \left| \frac{0,00018164}{0,539} \right| \cdot 100\% = 0,03369956\%$$

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