PATRICK HUSN

① $91_{16} + C6_{16}$
$64 + 16 + 8 + 2 + 1$
10110111

  b01011011
+ b11000110
 100010001 →

91_{16} ... $C6_{16}$
1100 0110

[100010001]   [289₁₀]

② $11_8 - 11_{10}$
b001001 - b0.01011
= b001001 + -(b110101)
= b001001 + b110101

  001001
  110101
  111110 → 000001 → 0000010

[-2₁₀]

③ 12.3125_{10}
1100 0101 I4Q4

11001010
00001000
1101 101   +   0001000 I4Q4

11011101 I4Q4

[13.8125₁₀]

④ $5.75_{10} - 7.125_{10}$
10111 I3Q2 - 111001 I3Q3
010111001 I4Q4 - 011100101 I4Q4
                negate +
1000 1110 I4

⑤ $9_{10} \cdot 3_{10}$
= 1001 · 0011
= 1001 · 0011 —

  1001
  0011
  1001
 1001
 11011

[= b11011] → [27₁₀]

  11011110
  10000110
  11101010 I4Q4

[- 0001.0110 I4Q4]

[= -1.375₁₀]

6. $(-5)_{10} \cdot (-6)_{10}$

$= 011 \cdot 110$

$= 011 \cdot 110$

$=\ \ 011$
$\quad\ 110$
$\quad\ 0110$
$\quad 0110$
$\quad b11110$

$\boxed{b11110 \rightarrow 30_{10}}$

7. $9.5_{10} \cdot 2.675_{10}$

$= 1001110_2 \cdot$

$1001110\ \overline{1}_{4}Q_1 \quad 10101\ \overline{1}_2Q_3$
$\downarrow$
$1001110\ \overline{1}_4Q_4 \sim 00101010\ \overline{1}_4Q_4$

1001110
0010101
1001110000
10011100000
1001110000
$\ldots$
$b\overline{1}1001111000$

$\boxed{24.9375_{10}}$

8. $-1.25_{10} \cdot 3.5_{10}$

$= 00101101_2 \cdot 011101_2$

$\downarrow$
11010
$11010\ \overline{1}_3Q_2 \quad 0111\overline{0}\ \overline{1}_3Q_2$

$\overline{1}_5Q_3 \rightarrow 1111010 \times 000111100$

$11010\ 10\ \overline{1}_5Q_3$
11010
$\ldots$
$101010\overline{1}.19\overline{1}000$

$\boxed{110110.1\ \overline{1}_5Q_3}$

9.

00100010
$001-0011$

$\boxed{-4.375_{10}}$