

# CDA 3103 Worksheet-3: IEEE Short Real Representation

**Problem:** Derive the IEEE Short Real representation of 17.35

**Step 1:** Convert Decimal to Binary Fixed Point

Whole Part	
17	

Fraction	
	.35

$17.35 = \mathbf{b10001.010\underline{110}}$  (the underline indicates a repeating digit sequence)

**Step 2:** Convert Binary Fixed Point to Normalized Binary Floating Point

Floating Point:  $10001.010\underline{110} \times 2^0$

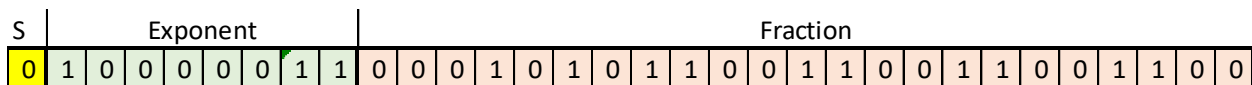
Normalized: \_\_\_\_\_

**Step 3:** Rewrite the Sign, Exponent and Fraction in IEEE Short Real Format

Sign: \_\_\_\_ ( 0 : Positive, 1 : Negative )

Exponent:  $127 + 4 = 128 + 3 \Rightarrow$  \_\_\_\_\_ (8 bits)

Fraction: \_\_\_\_\_ (23 bits)



**Step 4:** Express the result as a Hexadecimal Doubleword

IEEE Short Real (32 bits): \_\_\_\_\_

Hex Doubleword: \_\_\_\_\_