mafazzd

1/

b) $0.625 \times 2 = 1.25$

$0.25 \times 2 = 0.5$

$.5 \times 2 = 1$

$(.101)_2$

$(.101000000)$

c) $0.25 \times 2 = 0.5$

$0.5 \times 2 = 1$

$(.01)_2$

$(.010000000)_2$

e) $0.125 \times 2 = 0.25$

$0.25 \times 2 = 0.5$

$0.5 \times 2 = 1$

$(.001)$

$(.00100000)$

d) $0.5 \times 2 = 1.0$

~~$1 \times 2 = 2.$~~

$0.5 \times 2 = 1.0$

$(.1000000)$

4/ a) Q.7.8 — Q 8.8 ~~Q.8.7~~ Q.7.8 (15)

7.625

Q 7.7

7|2 = 3 r 1
3|2 = 1 r 1
1|2 = 0 r 1

~~1110000~~
(00000111)

.625 = (0.10100000)

⇒ (00000111.10100000)$_2$

b) 31.625

⇒ 31|2 → 15 r 1
15|2 → 7 r 1
7|2 → 3 r 1
3|2 → 1 r 1
1|2 → 0 r 1

(00011111)

.625 ⇒ (.00100000)

⇒ (00011111.00100000)$_2$

(c) 7

(d)

(c) $(0.3125)_{10}$

⇒ $0.3125 \times 2 = 0.625$

$0.625 \times 2 = 1.25$

$0.25 \times 2 = 0.5$

$0.5 \times 2 = 1$

↓ (01010000)

$(00000000.01010000)_2$

(d) -0.125

$0.125 \times 2 = 0.25$

$0.25 \times 2 = 0.5$

$0.5 \times 2 = 1$

↓ (.00100000)

$(00000000.00100000)_2$

11111111.11011111

+1

~~1 00000000~~

⇒

2s' complement is the answer

$(10000000.00100000)_2$

$= 0.10000000001 \times 10^{+8}$

6/a $(0.625)_{10}$ Q.0.3

$\Rightarrow$ $0.625 \times 2 = 1.25$

$0.25 \times 2 = 0.5$ ↓

$0.5 \times 2 = 1$ $(0.101)_2$

$\Rightarrow$

b) 0.875

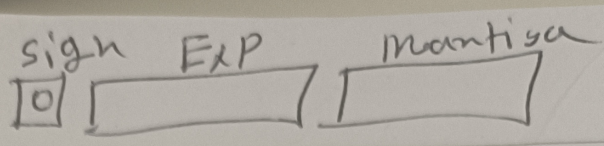
$= 0.875 \times 2 = 1.75$

$.75 : 1.5$

$.5 = 1$

Q.0.3

(0.111)



5/ a. 7.625

⇒ 7 = 00000111

.625 = 0.10100000

⇒ $(00000111.10100000)_2$

⇒ 1.11101×10^2

Sign	ExP	mantisa
0	00010	11110100

5/ b/ 31.125

31 = (00011111.00100000)

= 1.1111001×10^4

⇒

Sign	Exponent	mantissa
0	00100	1111100100

11110

00010
11101
+1
⇒ (11110)

5.c) 0.3125

⇒ (0.01010000)

= ~~0.101 × 10~~ 1.01×10^{-2}

sign	Exponent	mantissa
0	11110	1010000000

5.d) −0.125

⇒

~~Q/~~

$-0.09375 \times 2 = 0.1875$

$0.1875 \times 2 = 0.375$

$0.375 \times 2 = 0.75$

$0.75 \times 2 = 1.5$

$0.5 = 1$

$(0.0001100)_2$

00000000.0001100000000000000

$\Rightarrow$ ~~1.1×10^{-4}~~

Sign

00000000.0001100000000000000

$\Rightarrow$ 1.1 $\times 10^{-4}$

Sign Exp Mantissa

1 11111100 11000000000000000000000

$\Rightarrow$ 1.1×10^{-4}

7/a/ 0.025

$\Rightarrow$ $0.025 \times 2 = 0.05$

$0.05 \times 2 = 0.1$

$0.1 \times 2 = 0.2$

$0.2 \times 2 = 0.4$

$0.4 \times 2 = 0.8$

$0.8 \times 2 = 1.6$

~~1.6~~

~~0.000001~~ =

$0.6 \times 2 = 1.2$

$0.2 \times 2 = 0.4$

$.4 \times 2 = 0.8$

$.8 \times 2 = 1.6$

↓

23 times

of in question