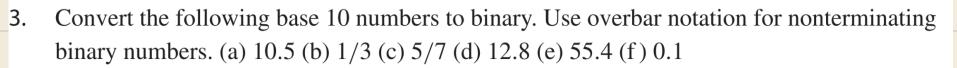
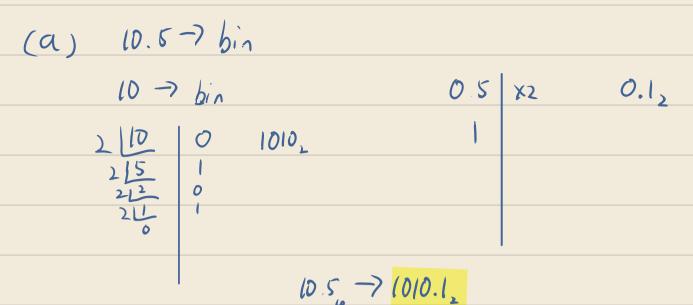
2. Find the binary representation of the base 10 numbers. (a) 1/8 (b) 7/8 (c) 35/16 (d) 31/64

$$\begin{array}{c|c}
0 & \overline{8} & \times 2 \\
0 & \overline{4} & \times 2 \\
0 & \overline{1} & \times 2 \\
1 & 1
\end{array}$$

0.0012

$$\begin{array}{c|c}
0 & 31 & \times 2 \\
\hline
0 & 31 & \\
\hline
0 & 31 & \\
\hline
0 & 31 & \\
\hline
15 & \\
\hline
16 & \\
7 & \\
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1 & 8 & \\
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1 & 4 & \\
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$$(b) \frac{1}{3} \rightarrow bin$$

$$0 \frac{1}{3} \times 2$$

$$0 \frac{2}{3}$$

$$0 \frac{1}{3} \times 2$$

$$0 \frac{1}{3} \rightarrow 0.01_{2}$$

$$0 \frac{1}{3} \rightarrow 0.01_{2}$$

$$0 \frac{1}{3} \rightarrow 0.01_{2}$$

$$0 \frac{1}{3} \rightarrow 0.01_{2}$$

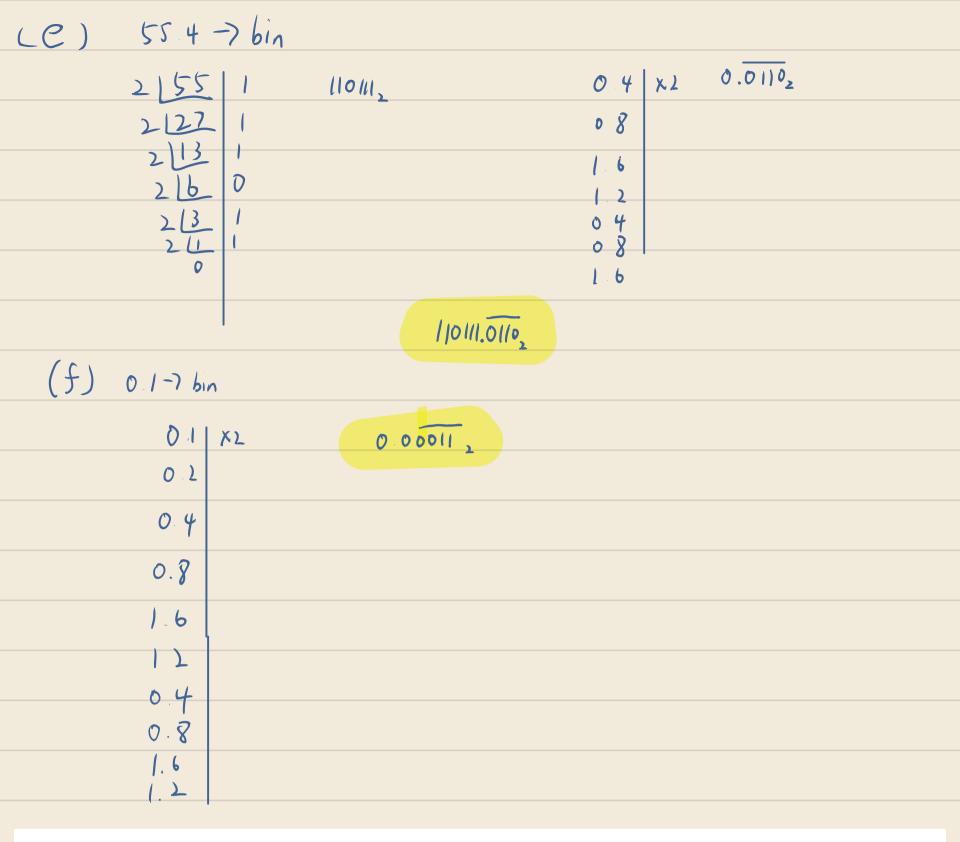
(d) 12.8 7 bin

2 [12 | 0 | 1100, 08 | X2 | 0.1100, 216 | 0

2 [2] | 1 | 1 | 1 | 2

2 [1] | 0 | 0.4 | 0.8 | 1.6

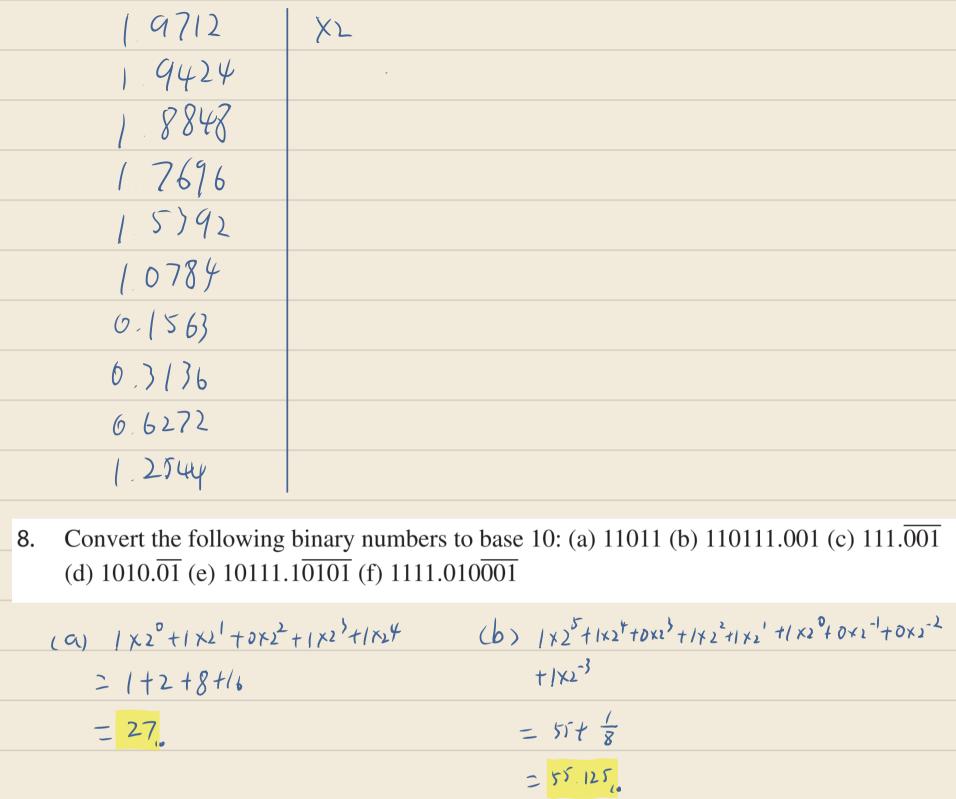
1.2



## 6. Find the first 15 bits in the binary representation of e.

## 2.71828182845904523536

0.7183	<b>X</b> 2	$e_{\iota_{b}}$	
1.4366		= 10, 1011011/11/100,	
0.8732			
1.7464			
1 4928			
0.9856			



(c) 
$$||| \overline{00}|$$
 (d)  $|0|0.\overline{0}|$ 
 $||0|_{2} = |0|_{0}$ 
 $|0.\overline{00}|_{2} \times 2^{3}$ 
 $|0.x_{2}^{2} + 0x_{2}^{2}|_{1} \times 2^{0} = 1$ 
 $|0|_{2} = |0|_{0}$ 
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(e) 
$$10(11.\overline{10(0)})$$
 (f)  $1111.010\overline{001}$   
 $10111_{2}=23_{10}$   $1111_{2}=15_{10}$   
 $2x = 1.\overline{0101}$   $0.010\overline{001} \times 1^{3}$ 

$$\frac{5}{2^{+}-1}=\frac{1}{3}$$

$$X=\frac{2}{3}$$

$$23 + \frac{2}{1} = \frac{71}{3}$$

$$8x = \frac{15}{7}$$