

$$\textcircled{1} \quad 3207_8$$

$$= 3 \times 8^3 + 2 \times 8^2 + 0 \times 8^1 + 7 \times 8^0$$

$$= 1671_{10}$$

$$\textcircled{2} \quad ACF7_{16}$$

$$= 10 \times 16^3 + 12 \times 16^2 + 15 \times 16^1 + 7 \times 16^0$$

$$= 44279_{10}$$

A	=	10
B	=	11
C	=	12
D	=	13
E	=	14
F	=	15

$$\textcircled{3} \quad D3.C5_{16}$$

$$= 13 \times 16^1 + 3 \times 16^0 + 12 \times 16^{-1} + 5 \times 16^{-2}$$

$$= 208 + 3 + \frac{12}{16} + \frac{5}{16^2}$$

$$\approx 211.770$$

④

a)

$$\begin{array}{l} 621 \div 8 \\ 77 \div 8 \\ 9 \div 8 \\ 1 \div 8 \end{array} \quad \begin{array}{c|c} Q & R \\ \hline 77 & 5 \\ 9 & 5 \\ 1 & 1 \\ 0 & 1 \end{array} \quad \uparrow$$

$$621_{10} = 1155_8$$

b)

$$\begin{array}{l} 0.84375 \times 4 \\ 0.375 \times 4 \\ 0.5 \times 4 \end{array}$$

Integer	Non-Integer
3	0.375
1	0.5
2	0

$$0.84375_{10} = 0.312_4$$

⑤

$$125 \div 16$$

$$7 \div 16$$

Q	R
7	13
0	7

↑

A = 10
⋮
D = 13

$$0.21875 \times 16$$

$$0.5 \times 16$$

Integer	Non-Integer
3	0.5
8	0

↓

$$125.21875_{10} = 7D.38_{16}$$

(6)

$$54 \div 5$$

$$10 \div 5$$

$$2 \div 5$$

Q	R
10	4
2	0
0	2

$$0.525 \times 5$$

$$\left\{ \begin{array}{l} 0.625 \times 5 \\ 0.125 \times 5 \end{array} \right.$$

$$\left\{ \begin{array}{l} 0.625 \times 5 \end{array} \right.$$

Integer	Non-Integer
2	0.625
3	0.125
0	0.625

repeating

$$54.525_{10} = 204.2\overline{30}_5$$

⑦

	Integer	Non-Integer
$0.1 \times 2$	0	0.2
$0.2 \times 2$	0	0.4
$0.4 \times 2$	0	0.8
$0.8 \times 2$	1	0.6
$0.6 \times 2$	1	0.2

$0.2 \times 2$

repeating

$$0.1_{10} = 0.00\overline{011}_2$$

$$\textcircled{8} \text{ a) } 37.14_8$$

$$= 011 \ 111. \ 001 \ 100_2$$

$$= 11 \ 111. \ 0011_2$$

$$\text{b) } 10 \ 1011. \ 11011_2$$

$$= 0010 \ 1011. \ 1101 \ 1000_2$$

$$= 2 \ B. \ D816$$

10 = A
11 = B
12 = C
13 = D
14 = E
15 = F

$$\text{c) } AD.84_{16}$$

$$= 1010 \ 1101. \ 1000 \ 0100_2$$

$$= 010 \ 101 \ 101. \ 100 \ 001_2$$

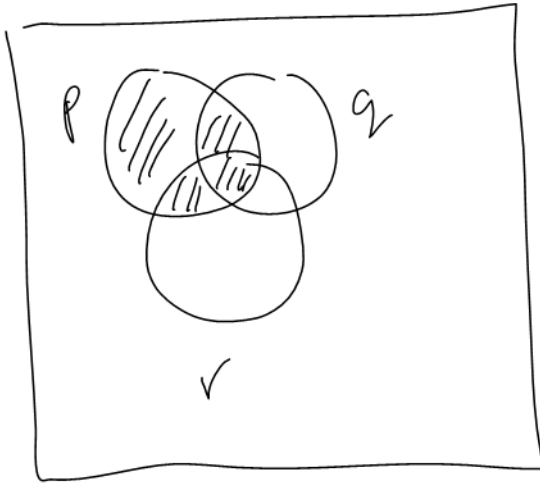
$$= 2 \ 5 \ 5. \ 41_8$$

- ⑨ a) YES      b) MAYBE  
c) YES      d) No  
e) YES      f) MAYBE

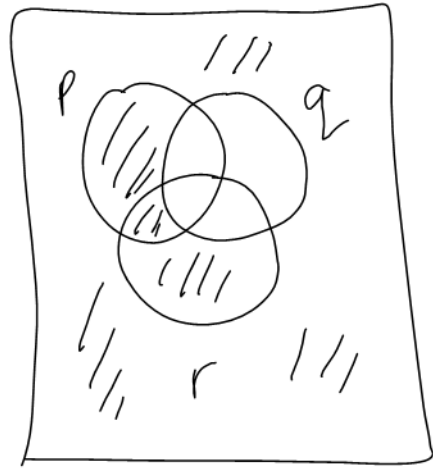
- ⑩ a) No  
b) YES  
c) YES  
d) No  
e) YES

- ⑪ a)  $c \oplus t$   
b)  $c \wedge \sim t$   
c)  $c \wedge (c \vee t)$   
d)  $c \vee (c \wedge t)$

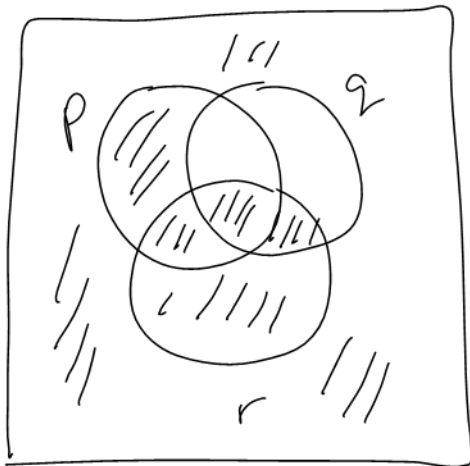
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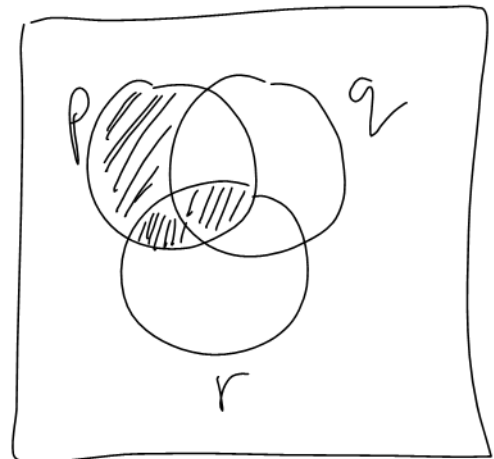
$p$



$\sim q$



$\sim q \vee r$



$p \wedge (\sim q \vee r)$



13

$p$	$q$	$r$	$\sim q$	$p \oplus \sim q$	$(p \oplus \sim q) \wedge r$
0	0	0	1	1	0
0	0	1	1	1	1
0	1	0	0	0	0
0	1	1	0	0	0
1	0	0	1	0	0
1	0	1	1	0	0
1	1	0	0	1	0
1	1	1	0	1	1

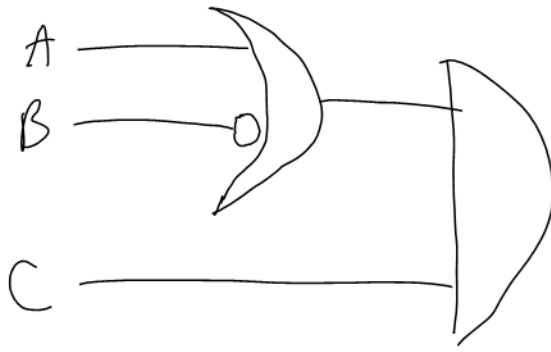
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$p$	$q$	$\sim q$	$p \vee \sim q$	$(p \vee \sim q) \wedge q$	$p \wedge q$
0	0	1	1	0	0
0	1	0	0	0	0
1	0	1	1	0	0
1	1	0	1	1	1

└──────────────────┘  
Identical

Yes.  $(p \vee \sim q) \wedge q \iff p \wedge q$

15



16

A	B	$\bar{B}$	$\bar{B}A$	$\bar{B} + \bar{B}A$
0	0	1	0	1
0	1	0	0	0
1	0	1	1	1
1	1	0	0	0

Identical

$$\bar{B} + \bar{B}A \Leftrightarrow \bar{B}$$