Review for Test 1

Monday, September 23, 2019 11:24 AM

Convert the following numbers to the indicated base. Show your work.

a) 1263_8 → hexadecimal
b) $1FC_{16}$ → decimal
c) 348 → octal

answer:

a) $1263_8 = 001\ 010\ 110\ 011_2$

$= 2B3_{16}$

b) $1FC_{16} = 1 \times 16^2 + 15 \times 16^1 + 12 \times 16^0$

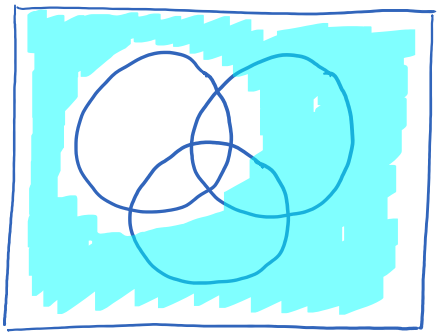
$= 508$

c)

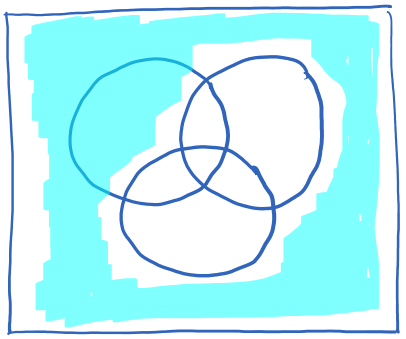
	Q	R
$348 \div 8$	43	4
$43 \div 8$	5	3
$5 \div 8$	0	5

534_8

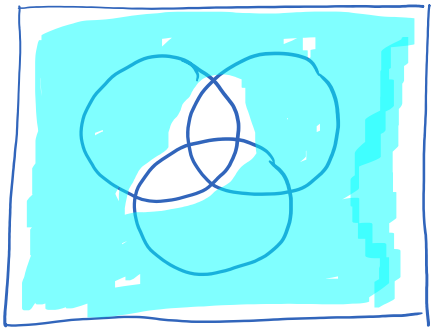
Represent $\overline{\bar{p} \vee (\bar{q} \wedge \bar{r})}$ on a Venn diagram by shading in the appropriate regions. Show intermediate steps on separate sketches and label them clearly to receive full credit.



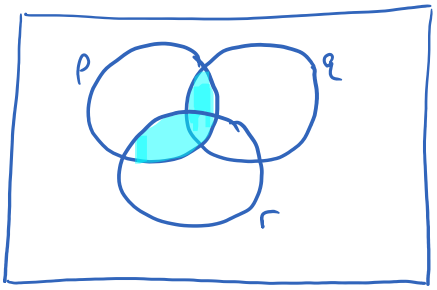
$\bar{p}$



$\bar{q} \wedge \bar{r}$



$\bar{p} \vee (\bar{q} \wedge \bar{r})$



$\overline{\bar{p} \vee (\bar{q} \wedge \bar{r})}$

Answer the questions below with "Yes", "No", or "Maybe".

a) Frank ordered an appetizer. Did he order an appetizer and salad?

Maybe

b) Frank ordered an appetizer. Did he order an appetizer or salad?

Yes

c) Frank did not order an appetizer. Did he order

c) Frank did not order an appetizer. Did he order an appetizer and salad? No

d) Frank did not order an appetizer. Did he order an appetizer or salad? Maybe

Is $\overline{\bar{A}\bar{B}}\,(\bar{A}+\bar{B})$ logically equivalent to zero? Justify your answer using a truth table.

A	B	$\bar{A}$	$\bar{B}$	$\bar{A}\bar{B}$	$\overline{\bar{A}\bar{B}}$	$\bar{A}+\bar{B}$	$\overline{\bar{A}\bar{B}}\,(\bar{A}+\bar{B})$
0	0	1	1	1	0	1	0
0	1	1	0	0	1	1	1
1	0	0	1	0	1	1	1
1	1	0	0	0	1	0	0

NO

Simplify $(\bar{p} \vee \bar{q}) \wedge (\bar{p} \vee q)$ using a truth table.

p	q	$\bar{p}$	$\bar{q}$	$\bar{p} \vee \bar{q}$	$\bar{p} \vee q$	$(\bar{p} \vee \bar{q}) \wedge (\bar{p} \vee q)$
0	0	1	1	1	1	1
0	1	1	0	1	1	1
1	0	0	1	1	0	0
1	1	0	0	0	1	0

$\bar{p}$