

1) num1 = 1

num2 = 0

$$\text{ans} = ((\text{num1} \& \text{num2}) \& \text{num1});$$

$$= (1 \& 0) \& 1$$

$$\text{ans} = 0$$

$$2) \text{ans} = (\text{num1} \& \text{num2}) \|\| \text{num2}++$$

$$= (1 \& 1) \|\| \text{num2}++;$$

$$= 1 \|\| 0$$

$$= 1$$

$$3) \text{ans} = (--\text{num1} \|\| ++\text{num2}) \& \text{num2}++$$

$$= (0 \|\| 1) \& \text{num2}++$$

$$= 1 \& 1$$

$$= 1$$

$$4) \text{num1} = \cancel{2} \cancel{3} \quad \text{num2} = \cancel{8} \cancel{9}$$

$$\text{ans} = (++\text{num1} - \text{num2}++) \& (-\text{num1} - \text{num2})$$

$$= (3 - 3) \& (2 - 4)$$

$$= 0 \& \cancel{f}$$

$$= 0$$

$$5) \text{num1} = \cancel{6} \quad \text{num2} = \cancel{4}$$

$$\text{ans} = (\text{num1} < \text{num2} \|\| \text{num1}++) \& (++\text{num1} \& \text{num1} < \text{num2});$$

$$= (5 < 4 \|\| 5) \& ($$

5) $\text{num1} = 5 // 7$ $\text{num2} = 4$

$$\begin{aligned}
 \text{ans} &= (\text{num1} < \text{num2} || \text{num1}++) \& \left(++\text{num1} \& \text{num1} < \text{num2} \right) \\
 &= ((5 < 4) || 6) \& (7 \& 0) \\
 &= (0 || 6) \& 0 \\
 &= 1 \& 0
 \end{aligned}$$

$\text{ans} = 0, 1, 4$

Temp $\boxed{}$

6) $\text{num} = 6 // 6$ $\text{num2} = 6 \% 6$

$$\begin{aligned}
 \text{ans} &= (++\text{num}, \& \text{num2}++) ! = (- - \text{num2} || \text{num1}--) \\
 &= (6 \& 6) ! = (6 || 6)
 \end{aligned}$$

$= 1 ! = 1$

$\therefore \text{Temp} = 6$

$\text{num1} = 6 \% 6$. $\text{num2} = 6 // 6$

$$\begin{aligned}
 \text{ans} &= (++\text{num1} \& \text{num2}++) ! = (- - \text{num2} || \text{num1}--) \\
 &= (6 \& 6) ! = (6 || 6)
 \end{aligned}$$

$= 1 ! = 1$

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num1 = 1/2

num2 = 0

ans = (num1 > num2 || num2) // ++ num1;

= (1 > 0 || 0) // 2;

= (1 || 0) // 2;

= (0 // 2)

=

1

8)

num1 = 1/2 num2 = 1/2

ans = num2 |= (++num1 || ++num2);

= 1 |= (2 || 1) // this part

= 1 |= 1

doesn't get execute.

= 0

9)

num1 = 1 num2 = 1

ans = (num1 == num2) || --num1;

= (1 == 1) || --num1

= 1 || whatever else
doesn't get execute

= 1

$\text{num1} = 1$ $\text{num2} = 0$

$$10) \text{ ans} = (\text{num2} > \text{num1}) == (\text{num1} || \text{num2})$$

$$\begin{aligned} &= (0 > 1) == (1 || \text{whatever}) \\ &= 0 == 1 \\ &= 0 \end{aligned}$$

$$11) \text{ num1} = 0, \text{ num2} = 1$$

$$\begin{aligned} \text{ans} &= \text{num1} || \text{num2} \text{ if } \text{num1} \\ &= 0 || 1 \text{ if } 0 \\ &= 1 \text{ if } 0 \\ &= 0 \end{aligned}$$

$$12) \text{ num1} = 1 \quad \text{num2} = 1$$

$$\begin{aligned} \text{ans} &= \text{num1} \text{ if } !\text{num2} || \text{num2} \\ &= 1 \text{ if } !1 || 1 \\ &= 1 \text{ if } 0 || 1 \\ &= 0 || 1 \\ &= 1 \end{aligned}$$

$$13) \text{ num1} = 0 \quad \text{num2} = 1$$

$$\begin{aligned} \text{ans} &= !(\text{num2} || (!\text{num1} \text{ if } \text{num2})) \\ &= !(1 || (!0 \text{ if } 1)) \\ &= !(1 || \text{whatever}) \\ &= 0 \end{aligned}$$

$\text{num1} = 0$ $\text{num2} = 0$

$$\begin{aligned}
 14) \quad \text{ans} &= (\text{num1} \& !\text{num1}) \mid\mid (\text{num1} \& \text{num2}) \\
 &= (0 \& !0) \mid\mid !0 \& 0 \\
 &= (0 \& 1) \mid\mid 1 \& 0 \\
 &= 0 \mid\mid 1 \& 0 \\
 &= 1 \& 0 \\
 &= 0.
 \end{aligned}$$

 $\text{num1} = 1$ $\text{num2} = 0$

$$\begin{aligned}
 15) \quad \text{ans} &= !(\text{num1} \mid\mid (\text{num1} \& !\text{num2})) \mid\mid 1 \\
 &= !(1 \mid\mid (1 \& !0)) \mid\mid 1 \\
 &= !(1 \mid\mid 1) \mid\mid 1 \\
 &= !(1 \mid\mid 1) \\
 &= 0
 \end{aligned}$$

 $\text{num1} = 1$ $\text{num2} = 0$

~~$$\begin{aligned}
 15) \quad \text{ans} &= !(\text{num1} \mid\mid (\text{num1} \& !\text{num2})) \mid\mid 1 \\
 &= !(1 \mid\mid (1 \& !0)) \mid\mid 1 \\
 &= !(1 \mid\mid 1) \mid\mid 1
 \end{aligned}$$~~

16) $\text{num1} = 0 \quad \text{num2} = 0$

$$\text{ans} = \text{num1} \$\$! \text{num2} \$\$ \text{num1} ||| 11$$

$$= 0 \$\$ 1 \$\$ 0 110$$

$$= 0 \$\$ 0 110$$

$$= 0$$

17) $\text{num1} = 0 @ 1 \quad \text{num2} = 0$

$$\text{ans} = \text{num1} ++ \$\$! \text{num1} \$\$ ++ \text{num2};$$

$$= 0 \cancel{+} \$\$ 1 \$\$ 1$$

$$= 0$$

Femp

18) $\text{num1} = 10 \quad \text{num2} = 121$

$$\text{ans} = !(-\text{--num1} ||| !\text{num2}++) \$\$ \text{num1}$$

$$= !(0 | 0) \$\$ 0)$$

$$= 1 \$\$ 0$$

$$= 0$$

19) $\text{num1} = 10 \quad \text{num2} = 1$

$$\begin{aligned}\text{ans} &= \text{num1} -- \text{if } |\text{num2}| \text{ num1}; \\ &= 1 \quad \text{if } 0 \quad || \quad 0 \\ &= 0\end{aligned}$$

20) $\text{num1} = 0 \quad \text{num2} = 10$

$$\begin{aligned}\text{ans} &= \text{num2} == (\text{num1} <= --\text{num2} \text{ if } |\text{num2}|); \\ &= 1 == (0 <= 0 \text{ if } 1) \\ &= 1 == 0\end{aligned}$$

$\text{ans} = 0$

$$\text{num1} = 20 \quad \text{num2} = 15 \quad \text{num3} = 4$$

$$\begin{aligned}21) \text{ans} &= \text{num1} - \text{num2} * 2 + \text{num3} \\ &\equiv 20 - 15 * 2 + 4 \\ &\equiv 20 - 30 + 4 \\ &\equiv -10 + 4 \\ &= -6\end{aligned}$$

22) $\text{num1} = 10 \quad \text{num2} = 12 \quad \text{num3} = 0$

$$\begin{aligned}\text{ans} &= (\text{num2} - \text{num1}) * 3 + \text{num3} \\ &= (12 - 10) * 3 + 0 \\ &= 2 * 3 = 6\end{aligned}$$

23) $\text{num1} = 5 \quad \text{num2} = 16 \quad \text{num3} = 10$

$$\begin{aligned}\text{ans} &= 10 + 10 - (2 + 5) * 10 \\ &\equiv 20 - 7 * 10 \\ &\equiv 20 - 70 \\ &= -50\end{aligned}$$

$$\text{num4} = 8$$

$$\text{num1} = 8 \quad \text{num2} = 10^{11} \quad \text{num3} = 12$$

24)

$$\begin{aligned}\text{ans} &= \text{num1} * \text{num3} + (\text{num4}/4) / \text{num1} - (\text{ffrom2}) \\ &= 8 * 12 + (8/4) / 8 - 11 \\ &= 96 + 2 / 8 - 11 \\ &= 96 + 0 - 11 \\ &= 85\end{aligned}$$

$$25) \quad \text{num1} = 4 \quad \text{num2} = 7 \quad \text{num3} = 5 \quad \text{num4} = 10$$

$$\begin{aligned}\text{ans} &= 15 / \text{num3} + (\text{num2} * 2 + \text{num1}) * \text{num2} + \text{num4} / 10 \\ &= 15 / 5 + (7 * 2 + 4) * 7 + 10 / 10 \\ &= 3 + (14 + 4) * 7 + 1 \cancel{10} / \cancel{10} \\ &= 3 + 18 * 7 + 1 \cancel{0} \\ &= 3 + 126 + 1 \cancel{0} \\ &= 130\end{aligned}$$

$\frac{18}{12} = 6$

26) number multiply zero is zero.

$$27) \quad \text{num1} = 3, \quad \text{num2} = 8, \quad \text{num3} = 12, \quad \text{num4} = 17$$

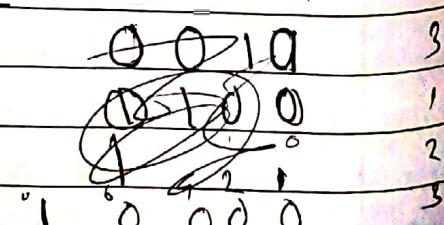
$$\begin{aligned}\text{ans} &= (\text{num1} * 3 + (\text{num2} * 3) * (\text{num3} / 3) + \text{num4} / 2) \\ &= (3 * 3 + (8 * 3) * (12 / 3) + 17 / 2) \\ &= (9 + 24 * 4 + 8) \\ &= 9 + 96 + 8 \\ &= 113\end{aligned}$$

$$28) \quad \text{num1} = 3 \quad \text{num2} = 3$$

$$\text{ans} = ++ \text{num1} \ll \text{num2}$$

$$= -3 \ll 3$$

$$= \underline{\underline{0}}$$



0 0 0 0 0 0 0
 128 64 32 16 8 4 2 1

$$28) \text{ ans} = 3 \ll 3 \\ = 24$$

00000011 → 3

shifting 3 bit to left

00011000

→ 26 in deci

$$29) \text{ num1} = 3, \text{ num2} = 4$$

$$\text{ans} = \text{num1} \ll \text{num2}++ \\ = 32 \ll 4 \\ = 96$$

011 → 3

shifting 2 time to left

0110000 → 58

$$30) \text{ num1} = 2, \text{ num2} = 4$$

$$\text{ans} = 2 + \text{num2} \gg 3 \quad 01000110 \\ = 2 + 4 \gg 3 \quad 01000 \\ = 2 + 6 \gg 3 \quad 01000 \\ = 70 \gg 3 \\ = 8$$

$$31) \text{ num1} = 3, \text{ num2} = 4, \text{ num3} = 2$$

$$\text{ans} = 10 + (\text{num3} \ll \text{num1}) * 3 / 2 \\ = 10 + (2 \ll 3) * 3 / 2 \\ = 10 + 18 * 3 / 2$$

$$2 \rightarrow 010 = 16$$

$$2 \rightarrow 010000$$

32) $\text{num1} = 5 \quad \text{num2} = 6 \quad \text{num3} = 2$

$$\text{ans} = \text{num2} \times \cancel{\gg} \text{num3} + \text{num1} * 3$$

$$\begin{aligned} &= 6772 + 513 \quad 0110 \rightarrow 6 \\ &= 1 + 15 \quad 0110 \rightarrow \\ &= 16 \quad 01 \end{aligned}$$

32) $\text{num1} = 5 \quad \text{num2} = 6 \quad \text{num3} = 6$

$$\text{ans} = \text{num2} \gg (\text{num3} + \text{num1} * 3)$$

$$\begin{aligned} &= 6 \gg 17 \\ &= 0 \end{aligned}$$

33) $\text{num1} = 6 \quad \text{num2} = 3 \quad \text{num3} = 11$

$$\text{ans} = \text{num2} | \text{num1} | \text{num3}$$

$$\begin{aligned} &= 011 | 110 | \text{num3} \\ &= 0011 | 1000 \\ &= 1111 \end{aligned}$$

34) $\text{num1} = 7 \quad \text{num2} = 4 \quad \text{num3} = 12$

$$\text{ans} = \text{num3} \$ \text{num1} \$ \text{num2}$$

$$\text{ans} = 12 \$ 7 \$ 4$$

$$\begin{array}{r} 12 \quad 1000 \\ 7 \quad 0111 \\ \hline 0100 \\ 4 \quad 0100 \\ \hline \end{array}$$

$$\text{ans} = 4 = 0100$$

35) $\text{num1} = 5 \quad \text{num2} = 7 \quad \text{num3} = 2$

$$\begin{array}{r} \text{ans} = \text{num1} | \text{num3} \& \text{num2} \\ = 4 | 2 \& 7 \end{array}$$

$$\begin{array}{r} = 4 - 100 \\ 2 - 010 \end{array} \text{ OR}$$

$$\begin{array}{r} 110 \\ 7 \overline{)111} \\ 6 \rightarrow 110 \end{array}$$

36) $\text{num1} = 17 \quad \text{num2} = 33 \quad \text{num3} = 42$

$$\begin{array}{r} \text{ans} = \text{num1} | \text{num3} \& \text{num2} \\ = 17 | 42 \& 33 \end{array}$$

$$\begin{array}{r} \cancel{0} \cancel{1} \cancel{0} \cancel{0} \cancel{0} 11 \\ 32 \cancel{1} \cancel{6} \cancel{8} \cancel{4} \cancel{2} \end{array} \quad 17 \quad \text{OR}$$

$$\begin{array}{r} \cancel{1} \cancel{0} \cancel{1} \cancel{0} \cancel{0} 42 \\ \cancel{1} \cancel{1} \cancel{0} \cancel{1} \cancel{1} \\ \cancel{0} \cancel{0} \cancel{0} \cancel{0} 1 \quad 33 \\ \hline 100001 \end{array}$$

$$010001$$

$$\cancel{101010} \quad \text{OR}$$

$$\begin{array}{r} \cancel{111011} \quad \cancel{0} \quad 32 \\ \cancel{100001} \quad \cancel{1} \quad \cancel{16} \\ \hline \cancel{110011} \quad \cancel{1} \quad \cancel{8} \\ \hline \end{array}$$

$$\text{Ans} = \underline{\underline{59}}$$

37) $\text{num1} = 1 \quad \text{num2} = 2 \quad \text{num3} = 6$

$$\text{ans} = \text{num1} * 2 \ll \text{num3} + (\text{num2}/2) * 3$$

$$= 1 * 2 \ll 6 + (2/2) * 3$$

$$= 2 \ll 6 + 3$$

$$= 2 \ll 9$$

512	256	128	64	32	16	8	4	2	1
1	0	0	0	0	0	0	0	0	0
1024									

$$= 1024$$

38) $\text{num1} = 7, \text{num2} = 33, \text{num3} = 25$

$$\text{ans} = \text{num3} \wedge 2 >> \text{num3} | \text{num1} \ll 5$$

$$= 25 \wedge (2 >> 4) | (1) \ll 5$$

=

$$= 25 \wedge 2 >> 25 | 17 \ll 5$$

$$= 25 \wedge 2 >> 3 \ll 5$$

$$= 25 \wedge 2 >> 96$$

$$= 25 \wedge 240$$

01000

00011

96

0001100000

11000

00000

11000

25

11000

168429

010

39) $\text{num1} = 8$

$\text{num2} = 35$

$\text{num3} = 22$

$$\text{ans} = \text{num2} \$ \text{num1} * 4 + (\text{num3} >> 3) | \text{num2} / 2$$

$$= 35 \$ 8 * 4 + (22773) | 35 / 2$$

$$= 35 \$ 8 * 4 + 2 | 17$$

$$010110 = 35 \$ 8 * 4 + 2 | 17$$

$$10 = 35 \$ 32 + 2 | 17$$

$$\textcircled{2} = 35 \$ 33 | 17$$

$$= 100011 \$$$

$$\begin{array}{r} 100010 \\ \hline 1000101 \end{array}$$

$$\begin{array}{r} 010001 \\ \hline 110011 \\ 32 \end{array}$$

$$\begin{array}{r} 32 \\ 16 \\ \hline 13 \\ 32 \\ \hline 51 \end{array}$$

$$40) \quad \text{num1} = 45$$

$$\text{num2} = 82$$

$$\text{num3} = 109$$

$$\text{sum} = \text{num2} \ll \text{num1} + 4 - (\text{num3}^3) + \text{num2} | 2^*(-156) \gg 3$$

$$= 82 \ll 45 + 4 - (109^3) + 82 | 2^*(-156) \gg 3$$

$$= 82 \ll 45 + 4 - (110) + 82 | 2^*(-156) \gg 3$$

$$= 82 \ll 45 + (-106) + 82 | 2^*(-20)$$

$$= 82 \ll 45 + (-106) + 82 | (-40)$$

$$0 + (-106) + 82 | -40$$

$$0 + 82 | -40$$

$$0 | -40$$

$$0 - 40 = \text{Ans}$$