EXAMEN 2025
RESTANȚĂ
PROBLEMELE FĂRĂ COD

① 216/2 = 108 R 0
108/2 = 54 R 0
54/2 = 27 R 0
27/2 = 13 R 1
13/2 = 6 R 1
6/2 = 3 R 0
3/2 = 1 R 1
1/2 = 0 R 1

$1101.1000_{(2)} = 216_{(10)}$

$0000\ 0000.\ 1101.\ 1000_{(2)}$

-137

137/2 = 68 R 1
68/2 = 34 R 0
34/2 = 17 R 0
17/2 = 8 R 1
8/2 = 4 R 0
4/2 = 2 R 0
2/2 = 1 R 0
1/2 = 0 R 1

$1000.\ 1001_{(2)} = 137$

$0000\ 0000.\ 1000.\ 1001 \sim$
$1111.\ 1111.\ 0111.\ 0110 +$
$\qquad\qquad\qquad\qquad 1$
$1111.\ 1111.\ 0111.\ 0111_{(2)} = -137$

②
```
int m=3, n=4, x=1, int a[m][n], i, j;
for(i=0; i<m; i++){
    for(j=0; j<n; j++){
        a[i][j]=x; x++;
        printf("%d", a[i][j]);
    }
    printf("\n");
}
i=2;
for(j=0; j<n; j++)
    printf("%d", *(*(a+i)+j));
```

	0	1	2	3
0	1	2	3	4
1	5	6	7	8
2	9	10	11	12

$*(a) \Leftrightarrow a[0]$
$*(a+i) \Leftrightarrow a[i]$
$*(*(a+i)+j) \Leftrightarrow a[i][j]$

0 1 0 11 12

```
printf("\n%d %d", (*(a))[2], (*(a+1))[2]);
```

$a[0][2] \Rightarrow 3$; $a[1][2] \Rightarrow 7$

③
```
int x = 10>>3 | (6 & 5), y = 3<<2;
printf("%d %d %d", x, y, x&&y, x||y);
```

$10_{(10)} = 1010_{(2)}$ $\quad 1010 >>3 = 1010 >>2 = 10 >>1 = 1$

$6_{(10)} = 110_{(2)}$
$5_{(10)} = 101_{(2)}$

110
101
$100_{(2)} = 4_{(10)}$

$x \,\&\&\, y = 1$
$5 \,\&\&\, x = 1$

3001
0100
$0101_{(2)} = 5_{(10)} \Rightarrow x = 5$

$\Rightarrow$ 5, 12, 1, 0

$3_{(10)} = 11_{(2)}$

$11 << 2 = 1100 << 1 = 11000_{(2)} = 24_{(10)} = y$

11001
0101
$1001_{(2)} = 9_{(10)}$

④
```
#define MACRO1(x) x + 2*(x)
#define MACRO2(x) (x + 2 * x)
```

$x=1;\ y1 = MACRO1(2*x) = 2*x + 2*(2*x) = 2 + 2\ (2) = 2 + 4 = 6$
$x=2;\ y2 = MACRO1(x-1) = x - 1 + 2*(x-1) = 2 - 1 + 2*(2-1) = 1 + 2 = 3$
$x=3;\ y3 = MACRO1(x++) = x++ + 2*(x++) = 3 + 2\ 4 = 3 + 8 = 11$
$x=4;\ y4 = MACRO2(x+3) = (x+3 + 2*x + 3) = 4 + 3 + 2*4 + 3 = 18$
$x=5;\ y5 = MACRO2(x++) = x++ + 2*x++ = 5 + 2*6 = 17$

y	x
6	1
3	2
11	3
18	4
17	7

⑤
```
int f(int n, ...){
    va_list args;
    va_start(args, n);
    int maxval = va_arg(args, int);
    for(int i=1; i<n; i++){
        int valent = va_arg(args, int);
        if(valent > maxval){
            maxval = valent;
        }
    }
    va_end(args);
    return maxval;
}
int main(){
    int rez = f(3, 10, 20, 70); // 30
    int rez1 = f(5, 3, 1, 2, 100, 5); // 100
    return 0;
}
```

va_list
va_start
va_arg
va_end