

Problema 1	15 ptos (5,5,5)	
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a)

$$127 = 1111111 = 1,111111 \times 2^6 = \quad 0 \ 10101 \ 1111110$$

En el exponente, $M = 15$, entonces $M + 6 = 15 + 6 = 21 = 10101$

$$130 = 1000010 = 1,000010 \times 2^7 = \quad 0 \ 10110 \ 000010$$

$$M + 7 = 15 + 7 = 22 = 10110$$

b)

$$127 + 130 = 257$$

Llevo ambos punto flotante al mayor exponente (12)

$$0,1111111 \times 2^7$$

$$+ 1,000010 \times 2^7$$

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$10,0000001 \times 2^7 = 1,00000001 \times 2^8 \approx 0 \ 10111 \ 0000000$ (se perdió el 1 menos significativo por el tamaño de la mantisa)

$$M + 8 = 15 + 8 = 23 = 10111_2$$

c) $1,0000000 \times 2^8 = 100.000.000_2 = 400_8 = 256_{10}$

Problema 2	28 ptos (5,10,13)	
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a)

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function I=IdentRc(n)
    if n==1
        I=1;
    else
        I=zeros(n);
        I(1,1)=1;
        I(2:n,2:n)=IdentRc(n-1);
    end
```

b)

```
function esta = BuscoIt(A,X,filal,filal2,colum1,colum2)
    esta = 0;
    i = filal;

    while (i<=filal2 && ~esta)
        j = colum1;
        while(j<=colum2 && ~esta)
            esta = (A(i,j)==X);
            j = j + 1;
        end
        i = i+1;
    end
```

c)

```
function y=ProdIt(As,Af,Ac,X)
    fila=Af(1);
    LA=length(As);
    y=zeros(length(X),1);
    for i=1:LA
        y(Af(i))=y(Af(i)) + As(i)*X(Ac(i));
    end
```

Problema 3	30 ptos (15,15)	
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a) `function H=ContarIt(T)`
`H=zeros(1,100);`
`for i=1:length(T)`
`pos=T(i);`
`H(pos)=H(pos) + 1;`
`end`

b) `function H=ContarRc(T)`
`LT=length(T);`
`if LT==0`
`H=zeros(1,100);`
`else`
`H=ContarRc(T(2:LT));`
`H(T(1))=H(T(1))+1;`
`end`

Problema 4	27 ptos (12,5,10)	
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a) `function arr=Arreglos123Rc(n)`
`if n==1`
`arr=[1 2 3];`
`else`
`arr=Arreglos123Rc(n-1);`
`[aux la]=size(arr);`
`uno=ones(1,la);`
`arr=[[uno;arr] [2*uno;arr] [3*uno;arr]];`
`end`

b) `function v=Repet123(n)`
`v=[ones(1,n), 2*ones(1,n), 3*ones(1,n)];`
`end`

c) `function arr=Arreglos123It(n)`
`arr=[]`
`for i=1:n`
`f1=Repet123(3^(i-1));`
`arr=[f1;[arr arr arr]];`
`end`