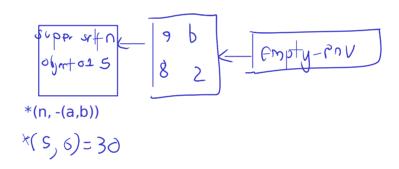


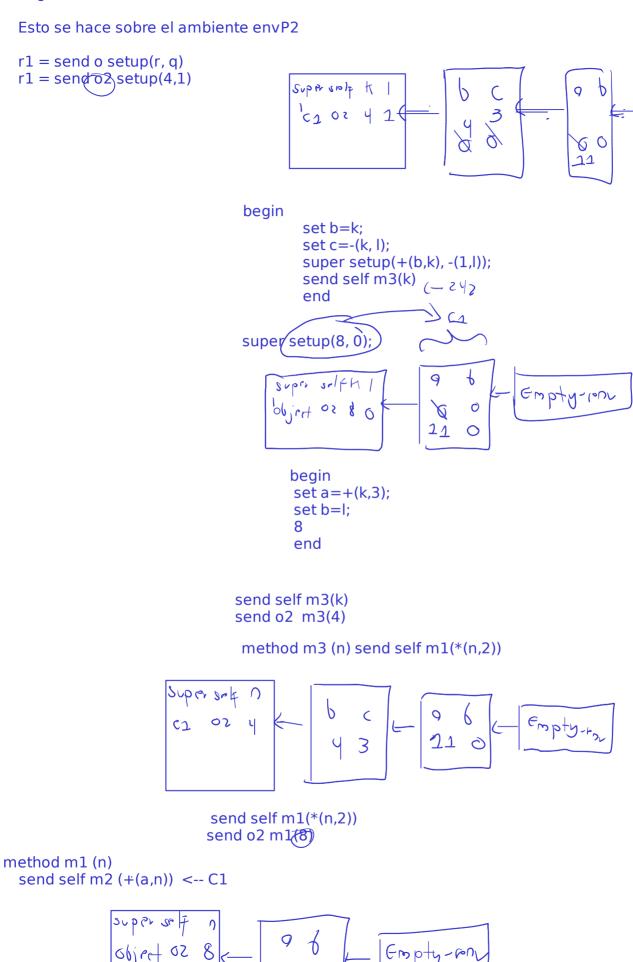
send self m2 (+(a,n))

Sold of m2(+(8,-3))Sold of m2(+(8,-3))



EnvPlC

Segundo llamado



5-10 m

method m2 (n) super m2(+(n, c))

method m2 (n) *(n, -(a,b)) \smile \bigcirc

Super srlf
$$n$$

object or 22
 $(0, -(9, 6))$
 $(22, 11) = 242$

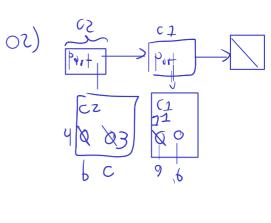
```
class c1 extends object
   field a
   field b
   method initialize () 0
   method setup (k, l)
        begin
        set a = +(k,3);
        set b=1;
        8
        end
   method m1 (n) send self m2 (+(a,n))
   method m2 (n) *(n, -(a,b))
   method m4 (x, y) send self m1 (-(x,y))
class c2 extends c1
   field b
                                                                          c 1
   field c
   method setup (k, l)
        begin
        set b=k:
        set c=-(k, l);
        super setup(+(b,k), -(1,l));
        send self m3(k)
        end
   method m2 (n) super m2(+(n, c))
   method m3 (n) send self m1(*(n,2))
   method m4 (n, m) + (m, super m4(n, m))
                                                   Enufz
class c3 extends c2
   method m2 (n) super m2(n)
                                                    Sept 02 my (1,4)
   method m4 (n,m) * (+(n,m),b)
let p=proc(o, r, q)
      let r1 = send o setup(r, q)
         in let r2 = send o m4(q, r)
              r3 = send o m1(r)
              in_+(r_1, +(r_2, r_3))
                                                                                          Empty-PAL
  o1 = new c1()
                                                                            11
  o2 = new c2()
  o3 = new c3()
  in let x = (p o1 5 2)
       y = (p o2 4 1)
       z = (p o 3 3 0)
                                               +(m, super m4(n, m))
       in send o2 m4(x, +(y,z))
                                                              11
                                        send self m1 (-(x,y))
                                         Smd oz m1 (-3)
```

```
class c1 extends object
                                                         Send 07 m1 (-3)
    field a
    field b
    method initialize () 0
    method setup (k, l)
        begin
        set a = +(k,3);
                                                                                  empty-m
        set b=1;
        8
                                                                          0
        end
    method m1 (n) send self m2 (+(a,n))
 \rightarrow method m2 (n) *(n, -(a,b))
    method m4 (x, y) send self m1 (-(x,y))
                                                       send self m2 (+(a,n))
class c2 extends c1
                                                       send o2 m2(8)
    field b
    field c
    method setup (k, l)
        begin
        set b=k;
        set c=-(k, l);
        super setup(+(b,k), -(1,l));
                                                                                            Empty-PAL
        send self m3(k)
                                                                               11
                                                                                    9
    method m2 (n) super m2(+(n, c))
    method m3 (n) send self m1(*(n,2))
                                                   super m2(\pm(n, c))
                                                  (super m2(11))
\rightarrow method m4 (n, m) +(m, super m4(n, m))
class c3 extends c2
    method m2 (n) super m2(n)
    method m4 (n.m)*(+(n.m).b)
                                                                              Empty-PD
let p=proc(o, r, q)
       let r1 = send o setup(r, q)
          in let r2 = send o m4(q, r)
              r3 = send o m1(r)
              in +(r1, +(r2,r3))
   o1 = new c1()
                                                   *(n, -(a,b))
   o2 = new c2()
                                                   *(11.11) = 121
   o3 = new c3()
   in let x = (p o1 5 2)
```

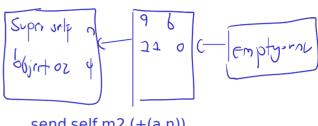
y = (p o2 4 1)z = (p o3 3 0)

in send o2 m4(x, +(y,z))

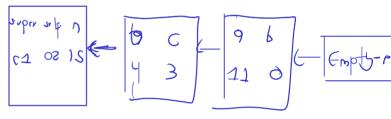
```
class c1 extends object
    field a
    field b
    method initialize () 0
    method setup (k. l)
        begin
        set a = +(k,3);
        set b=1;
        8
        end
    method m1 (n) send self m2 (+(a,n))
    method m2 (n) *(n, -(a,b))
    method m4 (x, y) send self m1 (-(x,y))
class c2 extends c1
    field b
    field c
    method setup (k, l)
        begin
        set b=k;
        set c=-(k, l);
                                                   send o2 m2(15)
        super setup(+(b,k), -(1,l));
        send self m3(k)
        end
    method m2 (n) super m2(+(n, c))
    method m3 (n) send self m1(*(n,2))
 \bullet method m4 (n, m) +(m, super m4(n, m))
class c3 extends c2
    method m2 (n) super m2(n)
    method m4 (n,m)*(+(n,m),b)
let p=proc(o, r, q)
                                                     super m2(18)
       let r1 = send o setup(r, q)
          in let r2 = send o m4(q, r)
              r3 = send o m1(r)
              in +(r1, +(r2,r3))
  o1 = new c1()
  o2 = new(c2)
  03 = \text{new c3}()
                                                     - 02 16
  in let x = (p o1 5 2)
       y = (p o2 4 1)
       z = (p o3 3 0)
       in send o2 m4(x, +(y,z))
```



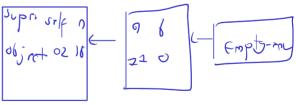
r3 = send o2 m1(4)



send self m2 (+(a,n))



super m2(+(n, c))



```
*(n, -(a,b))
*(18,11)
198
```

```
class c1 extends object
                                                    03)
   field a
   field b
   method initialize () 0
   method setup (k, l)
        begin
                                                           c3
        set a = +(k,3);
        set b=1;
                                                           ()
        end
   method m1 (n) send self m2 (+(a,n))
   method m2 (n) *(n, -(a,b))
   method m4 (x, y) send self m1 (-(x,y))
                                                     r1 = send o setup(r, q)
class c2 extends c1
                                                    r1 = send o3 setup(3,0)
   field b
   field c
   method setup (k, l)
        begin
                                                  Super self
        set b=k;
        set c=-(k, l);
                                                      0.3
                                                   (2
        super setup(+(b,k), -(1,l));
        send self m3(k)
        end
   method m2 (n) super m2(+(n, c))
   method m3 (n) send self m1(*(n,2))
                                                      super setup(+(b,k), -(1,l));
 method m4 (n, m) +(m, super m4(n, m))
                                                      super setup(6(1))
class c3 extends c2
   method m2 (n) super m2(n)
   method m4 (n,m) * (+(n,m),b)
let p=proc(o, r, q)
       let r1 = send o setup(r, q)
         in let r2 = send o m4(q, r)
              r3 = send o m1(r)
                                                send 03 m3 (3)
              in +(r1, +(r2,r3))
  o1 = new c1()
  02 = \text{new c2()}
  o3 = new c3()
                                             SUP SIF N
  in let x = (p o1 5 2)
                                                                                    Empty-rn
                                             1(1 03 3
       y = (p o2 4 1)
       z = (p o3 3 0)
       in send o2 m4(x, +(y,z))
                                                send self m1(*(n,2))
                                                send o3 m1(6)
                                                               91
                                            send self m2 (+(a.n))
```

send o3 m2(15)

```
class c1 extends object
   field a
   field b
                                                             c3
   method initialize () 0
   method setup (k, l)
                                                             ()
        begin
        set a=+(k,3);
                                                                               9
        set b=l:
        8
                                                    send o3 m2(15)
        end
                                                                                   (2
   method m1 (n) send self m2 (+(a,n))
                                                                           5
   method m2 (n) *(n, -(a,b))
                                                  SUPPY JUF
                                                                                   9
   method m4 (x, y) send self m1 (-(x,y))
                                                                            C
                                                                          6
                                                  (5 03 M
                                                                ()
                                                                          3
                                                                             3
class c2 extends c1
   field b
   field c
   method setup (k, l)
                                                      super m2(15)
        begin
        set b=k:
        set c=-(k, l);
        super setup(+(b,k), -(1,l));
                                                 Super Sole
        send self m3(k)
                                                                                   En10+y-m
        end
                                                 (1 03 L)
   method m2 (n) super m2(+(n, c))
   method m3 (n) send self m1(*(n,2))
 m method m4 (n, m) +(m, super m4(n, m))
                                                       super m2(+(n, c))
class c3 extends c2
                                                       super m2(18)
   method m2 (n) super m2(n)
   method m4 (n,m)*(+(n,m),b)
let p=proc (o, r, q)
       let r1 = send o setup(r, q)
         in let r2 = send o m4(q, r)
                                                                 91
                                                 Q1/1 318
              r3 = send o m1(r)
              in +(r1, +(r2,r3))
  o1 = new c1()
                                                    *(n, -(a,b))
  o2 = new c2()
                                                    *(18,8)
  o3 = new c3()
                                                    144
  in let x = (p o1 5 2)
       y = (p o2 4 1)
```

z = (p o3 3 0)

in send o2 m4(x, +(y,z))

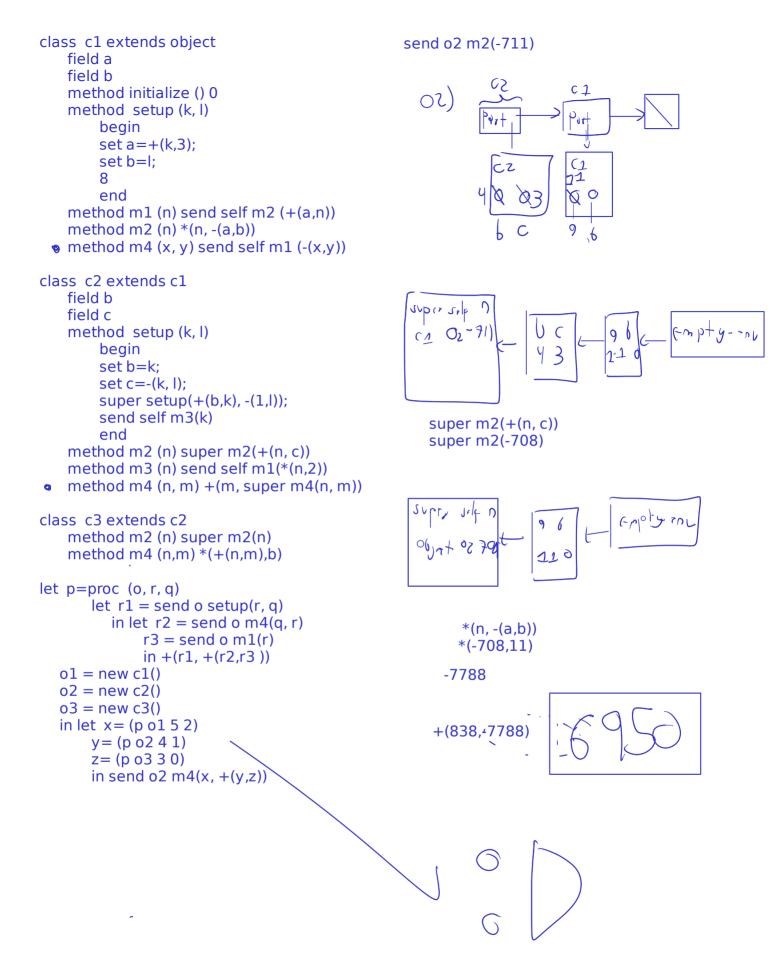
03)

```
03)
class c1 extends object
    field a
    field b
    method initialize () 0
                                                             c3
    method setup (k, l)
        begin
                                                             ()
        set a=+(k,3);
        set b=1;
                                                                       6 c
        8
                                                                               9
        end
    method m1 (n) send self m2 (+(a.n))
    method m2 (n) *(n, -(a,b))
                                                          r2 = send o m4(q, r)
    method m4 (x, y) send self m1 (-(x,y))
                                                          r2 = send o3 m4(0,3)
class c2 extends c1
    field b
    field c
    method setup (k, l)
        begin
        set b=k;
        set c=-(k, l);
        super setup(+(b,k), -(1,l));
        send self m3(k)
        end
                                                           *(+(n,m),b)
    method m2 (n) super m2(+(n, c))
    method m3 (n) send self m1(*(n,2))
                                                           3,3
    method m4 (n, m) + (m, super m4(n, m))
                                                           9
class c3 extends c2
    method m2 (n) super m2(n)
    method m4 (n,m)*(+(n,m),b)
                                                 r3 = send o3 m1(3)
let p=proc(o, r, q)
       tet r1 = send o setup(r, q)
          in let r2 = send o m4(q, r)
              r3 = send o m1(r)
              in +(r1, +(r2,r3))
   o1 = new c1()
   o2 = new c2()
   o3 = new c3()
   in let x = (p o1 5 2)
       y = (p o2 4 1)
       z = (p o3 3 0)
                                                    send self m2 (+(a,n))
       in send o2 m4(x, +(y,z))
                                                    send o3 m2(12)
                                                                             (2
                                            SUPP JULF
                                                                      C
                                                                                        (-wh 2)
                                            (s o3
                                                                    3
                                                Super moles
                                           super m2(+(n, c))
```

super m2(15)

```
m2(15) ← <sup>(1</sup>
class c1 extends object
   field a
   field b
   method initialize () 0
   method setup (k, l)
        begin
                                                         13
        set a = +(k.3):
        set b=I:
        8
        end
   method m1 (n) send self m2 (+(a,n))
                                                  *(n, -(a,b))
   method m2 (n) *(n, -(a,b))
  *(15,8)
class c2 extends c1
                                                 120
   field b
   field c
   method setup (k, l)
        begin
        set b=k;
                                                       send o2 m4(x, +(y,z))
        set c=-(k, l);
        super setup(+(b,k), -(1,l));
                                                      send o2 m4(116,838)
        send self m3(k)
        end
   method m2 (n) super m2(+(n, c))
   method m3 (n) send self m1(*(n,2))
   method m4 (n, m) +(m, super m4(n, m))
class c3 extends c2
   method m2 (n) super m2(n)
   method m4 (n,m)*(+(n,m),b)
let p=proc (o, r, q)
       let r1 = send o setup(r, q)
         in let r2 = send o m4(q, r)
                                                Super sit no
              r3 = send o m1(r)
                                                   02 110
              in +(r1, +(r2,r3))
                                                                           17 9
  o1 = new c1()
  02 = \text{new c2()}
  o3 = new c3()
  in let x = (p \ o1 \ 5 \ 2)
                                                               Cs my(1/6,83
      y = (p o2 4 1)
       z = (p o 3 3 0)
       in send o2 m4(x, +(y,z))
                                        ( P U
                                                $11 50 to $116
                                                          838
                                                    send self m1 (-(x,y))
                                                    send o2 m1(-722)
                                             send self m2 (+(a,n))
```

send o2 m2(-711)



Variable	Valor	Al evaluar la expresión
r_1		$+(r_1, +(r_2,r_3))$ por efecto
		de la aplicación $(p \ o_1 \ 5 \ 2)$
r_2		$+(r_1, +(r_2,r_3))$ por efecto
		de la aplicación ($p o_1 5 2$)
r_3		$+(r_1, +(r_2,r_3))$ por efecto
		de la aplicación ($p o_1 5 2$)
x		send o_2 m4 $(x, +(y,z))$ del
		cuerpo del let más interno
r_1		$+(r_1, +(r_2,r_3))$ por efecto
		de la aplicación ($p o_2 4 1$)
r_2		$+(r_1, +(r_2,r_3))$ por efecto
		de la aplicación ($p o_2 4 1$)
r_3		$+(r_1, +(r_2,r_3))$ por efecto
		de la aplicación $(p o_2 4 1)$
y		send o_2 m4 $(x, +(y,z))$ del
		cuerpo del let más interno
r_1		$+(r_1, +(r_2,r_3))$ por efecto
		de la aplicación ($p o_3 3 0$)
r_2		$+(r_1, +(r_2,r_3))$ por efecto
		de la aplicación $(p \ o_3 \ 3 \ 0)$
r_3		$+(r_1, +(r_2,r_3))$ por efecto
		de la aplicación ($p o_3 3 0$)
z		send o_2 m4 $(x, +(y,z))$ del
		cuerpo del let más interno

b) [6 pts.] Dibuje el ambiente en el que se evalua el cuerpo del método m4 en el proceso de evaluación de la expresión send o₂ m4(x, +(y,z)) del cuerpo del let más interno. Cuál es el resultado de evaluar esa expresión?