

Apéndice

OJIVA 1

```
D[P_, Q_] := sqrt[(P[[1]] - Q[[1]])^2 + (P[[2]] - Q[[1]])^2];
Oj4 D[P_, Q_, h_] := {Circle [P,d [P,Q], {0, π/3}],
                      Circle [Q,d [P,Q], {2 π/3, π}],
                      Line [P - {0,h}, Q - {0 ,h}]}];
Ldiv[1_] := Module[{Lpu={}},
  Do[ Lpu=Lpu∩
      {{1[[k, 1]],(1 [[k, 1]] + 1[[k, 2]])/2, ( 1[[k, 1]] + 1[[k, 2]])/2, 1[[k, 2]]}},
      {k,1,Length [1]}];
  Lpu];
OjGot4[P_, Q_, h_, n_] := Module [{Lg={Line[{P, P- {0, h}, Q - {0, h}, Q}],
  Line[{(P + Q)/2, [(P + Q)/2]-{O, h}]}], Lp= {{P, Q}}, s= 1},
  While[s≤ n,
    Do[Lg =
      Lg ∩ Oj4 [Lp[[k, 1]], Lp [[k, 2]], h],
      {k, 1, Length[Lp]}];
    Lp= Ldiv[Lp];
    s=s + 1];
  Lg
Show[Graphics[OjGot4[{-1/2, 1}, {1/2, 1}, 1, 8]], AspectRatio → 1.85]
```

OJIVA 2

```
D[P_, Q_] := sqrt[(P[[1]] - Q[[1]])^2 + (P[[2]] - Q[[1]])^2];
Oj4 D[P_, Q_, h_] := {Circle [P, d [P,Q], {0, π/3}],
                      Circle [Q, d [P,Q], {2 π/3, π}],
                      Line [P - {0, h}, Q - {0, h}]}];
Ldiv[1_] := Module[{Lpu={}},
  Do[ Lpu=Lpu∩
    {{1[[k, 1]], 1 [[k, 1]] + (- 1[[k, 1]] + 1[[k, 2]])/3},
    { 1[[k, 1]] + (- 1[[k, 1]] + 1[[k, 2]])/3, 1[[k, 1]] + (2/3)(-1[[k, 1]] + 1[[k,
    2]])},
    {1[[k, 1]] +(2/3)(-1[[k, 1]] + 1[[k, 2]])},
    {1[[k, 2]]}},
    {k,1,Length [1]}}];
  Lpu];
OjGot4[P_, Q_, h_, n_] := Module [{Lg={Line[{P, P- {0, h}, Q - {0, h}, Q}],
  Line[{(P + (-P+Q)/3, (P+(-P+Q)/3)-{0, h} }},
  Line[{(P + 2(-P+Q)/3, (P+2(-P+Q)/3)- {0, h} }},
  Lp= {{P, Q}}, s=1},
  While[s≤ n,
    Do[
      Lg = Lg ∩ Oj4 [Lp[[k, 1]], Lp [[k, 2]], h],
      {k, 1, Length[Lp]}}];
    Lp= Ldiv[Lp];
    s=s + 1];
  Lg]
Show[Graphics[OjGot4[{-1/2, 1}, {1/2, 1}, 1, 6]], AspectRatio → 1.85]
```

OJIVA 3

```
D[P_, Q_] := sqrt[(P[[1]] - Q[[1]])2 + (P[[2]] - Q[[1]])2];
Oj4 D[P_, Q_, h_] := {Circle [P,d [P,Q], {0, π/3}],
                      Circle [Q,d [P,Q], {2 π/3, π}],
                      Line [P - {0,h}, Q - {0, h}]}];
L1div[l_] := Module[{Lpu={}},
  Do[ Lpu=Lpu∩
    {{l[[k, 1]], l [[k, 1]] + 2/3(- l[[k, 1]] + l[[k, 2]])},
    { l[[k, 1]] + (- l[[k, 1]] + l[[k, 2]])/3, l[[k, 2]]}}
    {k,1, Length[l]}];
  Lpu];
L2div[l_] := Module[{Lpu={}},
  Do[ Lpu=Lpu∩
    {{l[[k, 1]], l [[k, 1]] + 1/2(- l[[k, 1]] + l[[k, 2]])},
    { l[[k, 1]] + (- l[[k, 1]] + l[[k, 2]])/2, l[[k, 2]]}}
    {k,1, Length[l]}];
  Lpu];
Ldiv[l, s]:= L2div[l]/; Mod[s,2]== 0
Ldiv[l, s]:= L1div[l]/; Mod[s,2]== 1

OjGot4[P_, Q_, h_, n_] := Module [{Lg={Line[{P, P- {0, h}, Q - {0, h}, Q]},
  Line[ {(P + (-P+Q)/3, P+(-P+Q)/3- {0, h} )},
  Line[ {(P + 2(-P+Q)/3, P+2(-P+Q)/3- {0, h} )},
  Lp= {{P,Q}}, s=1},
  While[s≤ n,
    Do[
      Lg = Lg ∩ Oj4 [Lp[[k, 1]], Lp [[k, 2]], h],
      {k, 1, Length[Lp]}];
    Lp= Ldiv[Lp];
```

```
s=s + 1];
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Lg]
```

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Show[Graphics[OjGot4[{-1/2, 1}, {1/2, 1}, 1, 10]], AspectRatio -> 1.85]
```

OJIVA 4

$D[P_ , Q_] := \text{sqrt}[(P[[1]] - Q[[1]])^2 + (P[[2]] - Q[[1]])^2] ;$
 $Oj4 D[P_ , Q_ , h_] := \{ \text{Circle } [P, d [P, Q], \{0, \pi/3\}],$
 $\text{Circle } [Q, d [P, Q], \{2 \pi/3, \pi\}],$
 $\text{Line } [P - \{0, h\}, Q - \{0, h\}] \} ,$
 $\text{Circle } [(P+Q)/2 + \{O, (5)^{1/2}/4 d [P, Q]\}, (d[P, Q]/4)],$
 $\text{Circle } [(P+Q)/2 + \{O, (5)^{1/2}/4 d [P, Q]\} + \{0, (d [P, Q])/(1+3^{1/2})^2\},$
 $3^{1/2}(d [P, Q])/2(1+3^{1/2})^2, \{-\pi/2, 4\pi/3\}],$
 $\text{Circle } [(P+Q)/2 + \{O, (5)^{1/2}/4 d [P, Q]\} + \{3^{1/2}(d [P, Q])/2(1+3^{1/2})^2,$
 $\{-\pi/3, 2\pi\}],$
 $\text{Circle } [(P+Q)/2 + \{O, (5)^{1/2}/4 d [P, Q]\} + \{3^{1/2}(d [P, Q])/2(1+3^{1/2})^2,$
 $-(3^{1/2}-1)(d [P, Q])/4(1+3^{1/2})^2, 3^{1/2}(d [P, Q])/2(1+3^{1/2})^2, \{-\pi,$
 $2\pi/3\}],$
 $\text{Line } [\{- 3^{1/2}(d [P, Q])/2(1+3^{1/2})^2, 0\}, \{ 3^{1/2}(d [P, Q])/2(1+3^{1/2})^2, 0\}]$
 $\} ;$

$L1div[l_] := \text{Module}[\{Lpu=\{\}\},$
 $\text{Do}[Lpu=Lpu \cap$
 $\{\{l[[k, 1]],$
 $1/2 [[k, 1]] + 1/2([[k, 2]])\},$
 $1/2 [[k, 1]] + 1/2([[k, 2]])\}, l[[k, 2]]\}$
 $\{k, 1, \text{Length}[l]\}];$
 $Lpu];$

$OjGot4[P_ , Q_ , h_ , n_] := \text{Module} [\{Lg=\{\text{Line}[\{P, P- \{0, h\}, Q- \{0, h\}, Q]\},$
 $\text{Line}[$
 $\{(P+Q)/2, (P+Q)/2- \{0, h\}\}],$
 $\text{Line}[\{- 3^{1/2}(d [P, Q])/2(1+3^{1/2})^2, 0\}, \{ 3^{1/2}(d [P, Q])/2(1+3^{1/2})^2, 0\},$
 $Lp= \{P, Q\}, s=1\},$

```
While[s ≤ n,  
  Do[  
    Lg =  
    Lg ∩ Oj4 [Lp[[k, 1]], Lp [[k, 2]], h],  
    {k, 1, Length[Lp]}];  
    Lp= Ldiv[Lp];  
    s=s + 1];  
  Lg]  
Show[Graphics[OjGot4[{-1/2, 1}, {1/2, 1}, 1, 6]], AspectRatio → 1.85]
```

