```
(* Quoficients per a la derivada central a cinc punts *)

(* Hipòtesi: la fórmula ha de ser exacta per al polinomi
    y=a + b x + c x^2 +d x^3 + e x^4        *)

(* Hipòtesi: y"(i)= aa y(i+2) + bb y(i-1) + cc y(i) +dd y(i-1) + ee y(i-2)     *)


(*       y (i+2)  = a+b (2 h)+c (2 h)^2+d (2 h)^3  +e (2 h)^4
         y (i+1)  = a+b h+c h^2+d h^3  +e
         y (i)=a
         y (i-1)  = a-b h+c h^2-d h^3  +e h^4
         y (i+2)  = a-b (2 h)+c (2 h)^2-d (2 h)^3  +e (2 h)^4
         y"(i)=2 c
 EN CONSEQUÈNCIA:

 2 c = aa (a+ 2b h+4 c h^2+ 8d h^3 +16 e h^4 )
     + bb (a+b h+c h^2+d h^3 +e h^4) + cc (a)
     + dd (a-b h+c h^2-d h^3 +e h^4)
     + ee (a - 2b h + 4 c h^2 - 8d h^3 + 16 e h^4)
          *)

Solve[{(aa + bb + cc + dd + ee) == 0,
       (2 aa + bb - dd - 2 ee) == 0,
       h^2 (4 aa + bb + dd + 4 ee) == 2 ,
      (8 aa + bb - dd - 8 ee) == 0,
      (16 aa + bb + dd + 16 ee) == 0},   {aa, bb, cc, dd, ee}]
```

$$\left\{\left\{cc \to -\frac{5}{2\,h^2},\ aa \to -\frac{1}{12\,h^2},\ bb \to \frac{4}{3\,h^2},\ dd \to \frac{4}{3\,h^2},\ ee \to -\frac{1}{12\,h^2}\right\}\right\}$$

```
aa = ee → -1 / 12
bb = dd →  4 / 3 → 16 / 12
cc → 5 / 2 →  -30 / 12

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(* Quoficients per a la derivada central a tres punts *)
(* Hipòtesi: la fórmula ha de ser exacta per al polinomi  y=a + b x + c x^2      *)

Solve[{(aa + bb + cc) == 0,
   (aa - cc) == 0,
  h^2 (aa + cc) == 2 }, {aa, bb, cc}]
```

$$\left\{\left\{bb \to -\frac{2}{h^2},\ aa \to \frac{1}{h^2},\ cc \to \frac{1}{h^2}\right\}\right\}$$