```
Punto 1
2 . f'(x) = -f(x+2h)+4f(x+h)-3f(x)
   -> X2
  f'(x2) = lim = X2 + 4xh-9t2 + 4x2 + 8xh+462-3x2
   f'(x2) = lim 4xk = 1/2x
  -> Sin X
   f'(sinx)= dim - oin (x+2h) + 4sin (x+h) - 3sin(x)
   = / [m - sin (x) cos (2h) = cos(x) sin(zh) + 4 sin(x) cos(h)
    + tcos(x)(sin(h) - 3sin X
  -= Sen(x) lrm (-cos(zh) + fcos(h) - 3) +cos(x) lim (sin(zh)
   +4sin(h))
   = Sen(x) lim 25en (2h) = 95cn(h) + cos(x) lim-2 cos(2h) + 4cos(h)
  = sen(x)(0) + cos(x)(-2+4) = cos(x)
• f''(x) = \frac{\epsilon(x+h) - 2\epsilon(x) + \epsilon(x-h)}{h^2}
   > Sincx)
    f''(x^2) = \lim_{h\to 0} \operatorname{sen}(x+h) - 2\operatorname{sen}(x) + \operatorname{sen}(x-h)
   f "(x9 = lim sen(x) coo (h) + sen(h) coo(x) - 2sen(x) + sen(x) coo(h)
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- senll+co(x)

= 
$$Sen(x) \lim_{h \to 0} \frac{2 \cosh - 2}{h^2} = Sen(x) \lim_{h \to 0} \frac{2 \sinh - 2}{2h}$$
  
=  $Sen(x) \lim_{h \to 0} \frac{-2}{2} = -sen(x)$   
 $\frac{-3}{h^2} = \lim_{h \to 0} \frac{2 \ln x^2 + 2xh + h^2 - 2x^2 + x^2 - 2xh + h^2}{h^2}$   
=  $\lim_{h \to 0} \frac{2 \ln x^2}{h^2} = 2$