Construir el polinomio interpolador para los siguientes datos de una función *f*:

$f(0) = 5$, $f(1) = -2$, $f'(1) = 5$, $f''(1) = 10$, $f'''(1) = 3$, $f(4) = 1$ y $f'(4) = -2$

x_i	$f[x_i]$	$f[x_i,x_{i+1}]$	$f[x_i,x_{i+1},x_{i+2}]$	$f[x_i,x_{i+1},x_{i+2},x_{i+3}]$	$f[x_i,x_{i+1},x_{i+2},x_{i+3},x_{i+4}]$	$f[x_i,x_{i+1},x_{i+2},x_{i+3},x_{i+4},x_{i+5}]$	$f[x_i,x_{i+1},x_{i+2},x_{i+3},x_{i+4},x_{i+5},x_{i+6}]$
0	5						
		$\frac{-2-5}{1-0} = -7$					
1	-2		$\frac{5-(-7)}{1-0} = 12$				
		$f[1,1] = f'(1) = 5$		$\frac{5-12}{1-0} = -7$			
1	-2		$f[1,1,1] = \frac{f''(1)}{2!} = 5$		$\frac{\frac{1}{2}-(-7)}{1-0} = \frac{15}{2}$		
		$f[1,1] = f'(1) = 5$		$f[1,1,1,1] = \frac{f'''(1)}{3!} = \frac{3}{3!} = \frac{1}{2}$		$\frac{\left(-\frac{47}{54}\right)-\frac{15}{2}}{4-0} = \frac{-113}{54}$	
1	-2		$f[1,1,1] = \frac{f''(1)}{2!} = 5$		$\frac{\left(\frac{-19}{9}\right)-\frac{1}{2}}{4-1} = -\frac{47}{54}$		$\frac{\frac{87}{162}-\left(-\frac{113}{54}\right)}{4-0} = \frac{71}{108}$
		$f[1,1] = f'(1) = 5$		$\frac{\left(-\frac{4}{3}\right)-5}{4-1} = \frac{-19}{9}$		$\frac{\frac{20}{27}-\left(-\frac{47}{54}\right)}{4-1} = \frac{87}{162}$	
1	-2		$\frac{1-5}{4-1} = \frac{-4}{3}$		$\frac{\frac{1}{9}-\left(\frac{-19}{9}\right)}{4-1} = \frac{20}{27}$		
		$\frac{1-(-2)}{4-1} = 1$		$\frac{-1-(-\frac{4}{3})}{4-1} = \frac{1}{9}$			
4	1		$\frac{-2-1}{4-1} = -1$				
		-2					
4	1						

$P_6(x) = f[0]+f[0,1](x-0)+f[0,1,1](x-0)(x-1)+f[0,1,1,1](x-0)(x-1)^2+f[0,1,1,1,1](x-0)(x-1)^3+f[0,1,1,1,1,4](x-0)(x-1)^4+f[0,1,1,1,1,4,4](x-0)(x-1)^4(x-4)$

$= 5 - 7x + 12\,x(x-1) - 7x(x-1)^2 + \frac{15}{2}x(x-1)^3 - \frac{113}{54}x(x-1)^4 + \frac{71}{108}x(x-1)^4\,(x\text{-}4) =$

$$\frac{71\,x^6 - 794\,x^5 + 3276\,x^4 - 6530\,x^3 + 7349\,x^2 - 4128\,x + 540}{108} = \frac{71}{108}\,x^6 - \frac{397}{54}\,x^5 + \frac{91}{3}\,x^4 - \frac{3265}{54}\,x^3 + \frac{7349}{108}\,x^2 - \frac{344}{9}\,x + \frac{185}{27}$$