a)

x_i	-1	0	1
$f(x_i)$	-3	-1	1

$n = 2$

$$P = f(x_0) l_0^2 + \dots f(x_n) l_n^2$$

$x_0 = -1$

$x_1 = 0$

$x_2 = 1$

l_0^2 $\quad$ l_1^2 $\quad$ l_2^2

$$\frac{(x-x_1)(x-x_2)}{(x_0-x_1)(x_0-x_2)} \qquad \frac{(x-x_0)(x-x_2)}{(x_1-x_0)(x_1-x_2)} \qquad \frac{(x-x_0)(x-x_1)}{(x_2-x_0)(x_2-x_1)}$$

$$\frac{(x)(x-1)}{(-1)(-2)} \qquad \frac{(x+1)(x-1)}{(1)(-1)} \qquad \frac{(x+1)(x)}{(3)(2)}$$

$$\frac{x^2-x}{2} \qquad x^2+x-x-1 \qquad \frac{x^2+x}{2}$$

$$\frac{x^2-1}{-1}$$

$$-3\left(\frac{x^2-x}{2}\right) + \left[-1\left(\frac{x^2-1}{-1}\right)\right] + \frac{x^2+x}{2}$$

$$\left(\frac{-3x^2+3x}{2}\right)+x^2-1+\left(\frac{x^2+x}{2}\right)$$

$$\frac{-3x^2+3x+2x^2-2+x^2+x}{2} = \frac{4x-2}{2}$$

b)

x_i	-2	0	1
$f(x_i)$	12	-4	-3

$x_0 = -2$

$x_1 = 0$

$x_2 = 1$

l_0^2 $\quad l_1^2$ $\quad l_2^2$

$$\frac{(x-x_1)\cdot(x-x_2)}{(x_0-x_1)(x_0-x_2)} \qquad \frac{(x-x_0)\,(x-x_2)}{(x_1-x_0)(x_1-x_2)} \qquad \frac{(x-x_0)\,(x-x_1)}{(x_2-x_0)(x_2-x_1)}$$

$$\frac{(x)(x-1)}{(-2)(-3)} \qquad \frac{(x+2)(x-1)}{(2)(-1)} \qquad \frac{(x+2)(x)}{(3)(1)}$$

$$\boxed{\frac{x^2-x}{6}} \qquad \frac{x^2+2x-x-2}{-2} \qquad \boxed{\frac{x^2+2x}{3}}$$

$$\boxed{\frac{x^2+x-2}{-2}}$$

$$12\left(\frac{x^2-x}{6}\right)+\left[-4\left(\frac{x^2+x-2}{-2}\right)\right]+\left[-3\left(\frac{x^2+2x}{3}\right)\right]$$

[illegible]

[illegible]

$$2x^2-2x+2x^2+2x-4-x^2-2x$$

$$\boxed{3x^2-2x-4}$$