

Nr. 1) a) $f(x) = ax^2 + bx + c$

A(-1|0) $\Rightarrow f(-1) = a(-1)^2 + b(-1) + c = 0$

B(0|-1) $\Rightarrow f(0) = a \cdot (0)^2 + b \cdot 0 + c = -1 \Rightarrow \underline{c = -1}$

C(1|0) $\Rightarrow f(1) = a \cdot 1^2 + b \cdot 1 + c = 0$

$$\begin{array}{r|l} 1a - 1b & = +1 \quad \cdot 1 \\ 1a + 1b & = +1 \quad \cdot 1 \\ \hline 0 - b & = +1 \Rightarrow \underline{b = -1 + 1 = 0} \\ 2a & = +2 \Rightarrow \underline{a = +1} \end{array}$$

$f(x) = +1 \cdot x^2 - 1$

b) A(0|0) $\Rightarrow f(0) = a \cdot 0 + b \cdot 0 + c = 0 \Rightarrow \underline{c = 0}$

B(1|0) $\Rightarrow f(1) = 1^2 \cdot a + 1 \cdot b = 0$

C(2|3) $\Rightarrow f(2) = 2^2 \cdot a + 2 \cdot b = 3$

$$\begin{array}{r|l} 1 \cdot a + 1 \cdot b & = 0 \quad \cdot 2 \\ 4 \cdot a + 2 \cdot b & = 3 \quad \cdot (-1) \\ \hline 1 \cdot a + 1 \cdot b & = 0 \Rightarrow \underline{b = -\frac{3}{2}} \\ -2a & = -3 \Rightarrow \underline{a = \frac{3}{2}} \end{array}$$

$f(x) = \frac{3}{2}x^2 - \frac{3}{2}x$

c) A(1|3) $\Rightarrow f(1) = (1)^2 \cdot a + 1b + c = 3 \quad \cdot 1 \quad \cdot 1$

B(-1|2) $\Rightarrow f(-1) = (-1)^2 \cdot a - 1b + c = 2 \quad \cdot (-1)$

C(3|2) $\Rightarrow f(3) = 3^2 \cdot a + 3b + c = 2 \quad \cdot (-1)$

$$\begin{array}{r} a + b + c = 3 \\ 2b = 1 \Rightarrow \underline{b = \frac{1}{2}} \\ -8a - 2b = 1 \\ \hline -8a - 2 \cdot \frac{1}{2} = 1 \Rightarrow -8a = 2 \Rightarrow \underline{a = -\frac{1}{4}} \end{array}$$

$-\frac{1}{4} + \frac{1}{2} + c = 3 \Rightarrow c = 3 + \frac{1}{4} - \frac{1}{2} = \frac{12}{4} + \frac{1}{4} - \frac{2}{4}$

$c = +\frac{11}{4}$

$f(x) = -\frac{1}{4}x^2 + \frac{1}{2}x + \frac{11}{4}$