QUESTÃO 2 a)

$$u(x) = \gamma_0 e^{\gamma_1 x + \gamma_2 x^2}$$

$$v(x) = \ln(u(x))$$

Aplicando as propriedades de log:

$$\ln(u(x)) = \ln(\gamma_0 e^{\gamma_1 x + \gamma_2 x^2})$$

$$\boxed{\log_a(b.c) = \log_a b + \log_a c}$$

$$\Rightarrow \ln(\gamma_0) + \ln(e^{\gamma_1 x + \gamma_2 x^2})$$

$$\boxed{\log_a b^c = c . \log_a b}$$

$$\Rightarrow \ln(\gamma_0) + \gamma_1 x + \gamma_2 x^2 . \overbrace{\ln(e)}^{1}$$

$$\Rightarrow \ln(\gamma_0) + \gamma_1 x + \gamma_2 x^2$$

$z_i = v(x_i) =$
$= \ln(u(x_i)) = y_i$

$z_0 = \ln(u(x_0)) = y_0$
$z_1 = \ln(u(x_1)) = y_1$
$z_2 = \ln(u(x_2)) = y_2$

Sabemos que $(x_i, y_i) \neq (x_i, \underbrace{\ln(y_i)}_{z_i})$

Logo, podemos interpolar por NEWTON:

$$v(x) = \ln(y_0) + f[x_0, x_1](x - x_0) + f[x_0, x_1, x_2](x - x_0)(x - x_1)$$

como $v(x) = \ln(u(x)) \Rightarrow$

$$u(x) = e^{v(x)}$$

$$\boxed{u(x) = e^{\ln(y_0) + f[x_0, x_1](x - x_0) + f[x_0, x_1, x_2](x - x_0)(x - x_1)}}$$