$f(1,4) = z(1,4) = 3(1) - 4 + 7 = 6$
$f_x(1,4) = z_x(1,4) = 3$
$f_y(1,4) = z_y(1,4) = -1$
$\begin{cases} x(s,t) = \cos(s)t^2 \\ y(s,y) = (s+2t)^2 \end{cases}$
$\begin{cases} x_s(s,t) = -\sin(s)t^2 \\ x_t(s,t) = 2\cos(s)t \\ y_s(s,t) = 2(s+2t) \\ y_t(s,t) = 4(s+2t) \end{cases}$
$F(s,t) = f(x(s,t), y(s,t))$

1. $\frac{\partial f}{\partial s} = \frac{\partial f}{\partial x} \cdot \frac{\partial x}{\partial s} + \frac{\partial f}{\partial y} \cdot \frac{\partial y}{\partial s} =$
   $f_x(1,4) \cdot x_s(0,-1) + f_y(1,4) \cdot y_s(0,-1) =$
   $3 \cdot 0 + (-1) \cdot 4 = -4$
2. $\frac{\partial f}{\partial t} = \frac{\partial f}{\partial x} \cdot \frac{\partial t}{\partial s} + \frac{\partial f}{\partial y} \cdot \frac{\partial y}{\partial t}$
   $f_x(1,4) \cdot x_t(0,-1) + f_y(1,4) \cdot y_t(0,-1) =$
   $3 \cdot (-2) + (-1) \cdot -8 = -6 + 8 = 2$

$z = \boldsymbol{\nabla} F(0,-1) \cdot (s, t+1) + F(0,-1) =$

$\boldsymbol{\nabla} F(0,-1)$ ya lo calculamos antes

$\boldsymbol{\nabla} F(s,t) = (-4, 2)$
$\Rightarrow z = (-4,2) \cdot (s, t+1) + f(1,4)$
$\Rightarrow z = -4s + 2(t+1) + 6$