$$\left(2\left(re^{-s}\right)\right)\left(e^{-s}\right)+\left(2\left(s^2e^{-\pi}\right)\right)\left(-s^2e^{-\pi}\right)+\left(2\left(re^{s}\right)\right)\left(e^{s}\right)$$

$r=2 \; e \; s=1$

$$\rightarrow 2\times2\times e^{-1}\times e^{-1}+\left(2e^{-2}\right)\times\left(-e^{-2}\right)+2\times2\times e^{2}$$

$$=4e^{-2}-2e^{-4}+4e^{2}$$

$$=\boxed{4e^{-2}-2e^{-4}+4e^{2}}$$

7) $y=f(x)$

$$x^3+xy^2+y^4+x=4$$

$$=3x^2+y^2+x2y\frac{dy}{dx}+4y^3\frac{dy}{dx}+1=0$$

$$\frac{dy}{dx}\left(x2y+4x^3\right)=-1-3x^2-y^2$$

$$\frac{dy}{dx}=\frac{-y^2-3x^2-1}{2y\left(x+2y^2\right)}$$, desde que

$$\underline{\underline{2y\left(x+2y^2\right)\neq0}}$$

8) $z^2y+2xz^2+xy^2+4z=0$ $\quad z=f(x,y)$

$$\frac{\partial z}{\partial x}=-\frac{F_x}{F_z}=-\frac{2z^2+y^2}{2zy+4xz+4}$$

$$\frac{\partial z}{\partial y}=-\frac{F_y}{F_z}=-\frac{z^2+2xy}{2zy+4xz+4}$$