2.5: Partielle derivierte av höjere orden

2) a) $f(x,y,z) = x^2 y e^{xz}$

$$\frac{\partial^3 f}{\partial x \partial z \partial x} = y \frac{\partial^2}{\partial x \partial z}\left(2xe^{xz} + x^2 z e^{xz}\right)$$

$$= y \frac{\partial}{\partial x}\left(2x^2 e^{xz} + x^2 e^{xz} + x^3 z e^{xz}\right)$$

$$= y\left(4xe^{xz} + 2x^2 z e^{xz} + 2xe^{xz} + x^2 z e^{xz} + 3x^2 z e^{xz} + x^3 z^2 e^{xz}\right)$$

$$= xye^{xz}\left(4 + 2xz + 2 + xz + 3xz + x^2 z^2\right)$$

$$= xye^{xz}\left(6 + 6xz + x^2 z^2\right)$$