(1) 式

$$z = f(x, y)$$

(2) 式

$$\Delta z = f(x + h, y + k) - f(x, y)$$

(3) 式

$$\begin{aligned}\Delta z &= f(x + h, y + k) - f(x, y + k) + f(x, y + k) - f(x, y) \\ &= f_x(x, y + k)\Delta x + \delta\Delta x + f_y(x, y)\Delta y + \varepsilon\Delta y\end{aligned}$$

(4) 式

$$\Delta z = f_x(x, y + k)\Delta x + f_y(x, y)\Delta y$$

(5) 式

$$\mathrm{d}z = f_x(x, y)\mathrm{d}x + f_y(x, y)\mathrm{d}y = \left[\frac{\partial f(x, y)}{\partial x}\right]_y \mathrm{d}x + \left[\frac{\partial f(x, y)}{\partial y}\right]_x \mathrm{d}y$$

(6) 式

$$z = x^2 + 2y^3$$

(7) 式

$$\mathrm{d}z = \left(\frac{\partial z}{\partial x}\right)_y \mathrm{d}x + \left(\frac{\partial z}{\partial y}\right)_x \mathrm{d}y = 2x\mathrm{d}x + 6y^2\mathrm{d}y$$