

1.5.1

$$\frac{\partial f}{\partial x} = 3x^2 - 2y$$

$$\frac{\partial f}{\partial y} = 3y^2 - 2x$$

11)

$$f(a_1 + b_1 \varepsilon, a_2 + b_2 \varepsilon) = f(a_1, a_2) + \{(3a_1^2 - 2a_2)b_1 + (3a_2^2 - 2a_1)b_2\} \varepsilon + o(\varepsilon)$$

$$(1) \quad f(a_1 + b_1 \varepsilon, a_2 + b_2 \varepsilon) = 0$$

$$\Leftrightarrow f(1, 1) = 0, \quad (3-2)b_1 + (3-2)b_2 = 0$$

$$\Leftrightarrow b_1 + b_2 = 0$$

1.2.

$$\{(b_1, b_2) \mid b_1 + b_2 = 0\}$$

$$(2) \quad f(a_1 + b_1 \varepsilon, a_2 + b_2 \varepsilon) = 0$$

$$\Leftrightarrow f(0, 0) = 0, \quad (0-0)b_1 + (0-0)b_2 = 0$$

\Leftrightarrow

$$\forall b' = (b_1, b_2)$$

1.2

\mathbb{C}^2