

$$2) z' = \frac{z-1+2i}{z-i}$$

$$z' = \frac{x+iy-1+2i}{x+iy-i}$$

$$z' = \frac{(x-1)+i(2+y)}{x+i(y-1)}$$

$$z' = \frac{[(x-1)+i(2+y)][x-i(y-1)]}{x^2+(y-1)^2}$$

$$z' = \frac{(x-1)x - i(y-1)(x-1) + i(2+y)x - i^2(y-1)(2+y)}{x^2+(y-1)^2}$$

$$= \frac{(x-1)x + (y-1)(2+y)}{x^2+(y-1)^2} + i \frac{-(y-1)(x-1) + (2+y)x}{x^2+(y-1)^2}$$

$$= \frac{x^2-x+2y+y^2-2-y}{x^2+(y-1)^2} + i \frac{-yx+y+x-1+2x+yx}{x^2+(y-1)^2}$$

$$= \frac{x^2+y^2-x+y-2}{x^2+(y-1)^2} + i \frac{3x+y-1}{x^2+(y-1)^2}$$

Donc

$$x' = \frac{x^2+y^2-x+y-2}{x^2+(y-1)^2}$$

$$y' = \frac{3x+y-1}{x^2+(y-1)^2}$$