$f(x,y) = (a,b)$

$(2y, x+y) = (a,b)$

$2y = a \quad y = \frac{a}{2}$

$x + y = b$

$x + \frac{a}{2} = b$

$x = b - \frac{a}{2}$

$f^{-1}(a,b) = (b - \frac{a}{2}, \frac{a}{2})$

$f^{-1}(x,y) = (y - \frac{x}{2}, \frac{x}{2})$

8a

$g(ax+b) = (b, a+b)$

$g(ax+b) = (c,d)$

$(b, a+b) = (c,d)$

$b = c$

$a + b = d$

$a + c = d$

$a = d - c$

$g^{-1}(c,d) = ((d-c)x + c)$

8b