4) $f' = 2ize^{iz^2}\operatorname{Log}(4z-3i) + \dfrac{4e^{iz^2}}{4z-3i}$ (12)

Domain is ~~$\mathbb{C}\setminus\{$~~

~~$(4z-3i)\{x$~~

$4(x+iy)-3i = 4x+(4y+3)i$

Must have $x>0$ or $4y+3\neq 0$

$\therefore x>0$ or $y\neq -3/4$

Domain is $\{x+iy\in\mathbb{C}:$

$x>0$ or $x<0, y=-3/4\}$.

b) $f(z) = \operatorname{Im}(z) + i\operatorname{Re}(z)$