ii) Translate by $2i$ (15)
reverse orientation
Scale by 4 & rotate by $\pi/2$
translate -1

iii) $\gamma_1 = 2i + e^{it}$ $\quad \gamma_2 = (2-3t) + i(3-3t)$

$t = 2/3$ in $\gamma_2 \Rightarrow \gamma_2 = (2 - 3\times\frac{2}{3}) + i(3 - 2\times\frac{2}{3})$
$= i$

$t = 3\pi/2$ in $\gamma_1 \Rightarrow \gamma_1 = 2i + e^{3\pi i/2} = 2i - i = i$

$\therefore \gamma_1$ meets γ_2 at i.

ii) $\gamma_1' = ie^{it}$ $\quad \gamma_2' = -3 - 3i$

$\gamma_1'(3\pi/2) = ie^{i3\pi/2} = i(-i) = 1$

$\gamma_2'(2/3) = -3 - 3i$

$(f(\gamma_1))' = \gamma_1' f'(\gamma_1) = 1 \times \left(\frac{-4i}{i-2i}\right)^2 = \left(\frac{-4i}{-i}\right)^2 = 16$

$\text{Arg}(f(\gamma_1))' = 0$