1. $x''' + x' = 2\cos t$

$z''' + z' = 2e^{it}$

$p(r) = r^3 + r$

$p(i) = -i + i = 0$

$p'(r) = 3r^2 + 1$

$p'(i) = -3 + 1 = -2$

$z_p(t) = \frac{2e^{it} \cdot t}{-2} = -te^{it} = -t(\cos t + i\sin t)$

$x_p(t) = -t\cos t$