we find $\rho_d > \rho_d$ for a closed universe, as expected; this greater density at ρ_d is offset by a greater value for H_d)

It was for a given value of H_o and ρ_o that we found ρ_d, R_o and R_d in a closed universe. We put those values into the eq. $\frac{R_o}{R_d} = \left(\frac{t_o}{t_d}\right)^{2/3}$ (which applies to open universe) to find t_d. (Hence in part (iv) we mixed values found for critical and closed universes). Since deceleration is greater in a closed universe than an open universe, H decreases faster as t increases (ie deceleration is greater). Hence for a given value of H_o, H_d would have been greater in a closed than a critical universe. $q_o > 1/2$

since $\rho_d = N\left(H_d^2 + \frac{kc^2}{R_d^2}\right)$

and H_d^2 is greater in a closed universe for a given value of H_o we would expect ρ_d to be greater in a closed than a critical universe for this given value of H_o.

In this case $kc^2/R_d^2 \ll H_d^2$, and whether we put k=0 or 1 does not make much difference, but I worked k=0 out anyway in one of the other solutions.

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