1. Find the particular solution of the DE

\[
\frac{dy}{dx} = \frac{xy + 3y - x - 3}{xy - 2y + x - 2}, \quad y(3) = 2
\]

2. Find the general solution of the first order linear DE:

\[
(1 + x^2) \frac{dy}{dx} - 2xy = (1 + x^2) \tan^{-1}(x)
\]
3. The population of a town grows at a rate proportional to the population present at time \( t \). The initial population of 2000 increases by 20% in 50 years. What will be the population in 100 years?