Euler's method problems

Note: You might find it helpful to record your results in a table as you proceed through the calculations for each problem.

1. With a step size of $\Delta t = 0.2$, compute three steps of Euler's method to approximate the solution of $y' = -0.3y$ starting with $y = 25$ for $t = 1$.

   Answer: $R(1.6) \approx 20.76$

2. With a step size of $\Delta x = 0.1$, compute three steps of Euler's method to approximate the solution of $y'(x) = e^{-x^2}$ starting with $y(0) = 0$.

   Answer: $y(0.3) \approx 0.295$

3. With a step size of $\Delta t = 0.4$, compute three steps of Euler's method to approximate the solution of $g'(t) = tg(t)$ starting with $g(0) = 5$.

   Answer: $g(1.2) \approx 7.656$

4. With a step size of $\Delta t = 0.5$, compute ten steps of Euler's method to approximate the solution of $R' = t - R$ starting with $R = 3$ for $t = 0$. Graph your computed points in a plot of R versus t.