List of suggested exercises, Sections 11.3,5-7
For the DGD of June 19th and 21th.

Question 1. Consider the differential equation $y' = \cos(x)\sin(y)$.

   (a) Use Euler's method with $\Delta x = 0.1$ with three steps, starting at (i) $(0,2)$ and (ii) $(0,\pi)$.

   (b) Find the general solution for this equation.

   (c) In each case, what is the absolute error ? The relative error ?

Question 2. Repeat this process for each of the following initial value problems with the given time step:

   (a) $y' = y/(3+t)$, $y(0) = 1$, $\Delta t = 0.2$ on 4 steps. Then $\Delta t = 0.4$ on 2 steps.

   (b) $y' = 5y/x$, $y(1) = 3$, $\Delta x = 0.3$ on 5 steps. Then $\Delta x = 0.5$ on 3 steps.

   (c) $y' = 2y - 4$, $y(4) = 2$, $\Delta x = 0.5$ to find $y(6)$.

   (d) $w' = t\, w^2 \sin(t^2)$, $w(1) = 1$, $\Delta t = 0.6$ to find $w(4)$.

More, in the book: Note that if you do not have access to the book, if you send me a e-mail I can provide you with a copy of these exercises.

   Section 11.5: 10,11,12,13,15,19,21,23,24.

   Section 11.6: 7,9,12,13,18,24.

   Section 11.7: 5,6,9,11,14.