Homework assigned Wednesday, September 29

On pages 158–159 do problems 1–8 and 18. These are due Monday.

There will be a quiz on Monday where some of the following questions will be ask.

- State the principle of superposition of solutions for the homogeneous equation

$$y'' + p(x)y' + q(x)y = 0 \tag{1}$$

  Solution: If y_1 and y_2 are solutions to the equation (1), and c_1 and c_2 are constants, then $y = c_1y_1 + c_2y_2$ is also a solution.

- Be able to state Crammer's rule for the solution of a system of liner equation.

  Solution: The solution to the system

$$\begin{aligned} ax + by &= e \\ cx + dy &= f \end{aligned}$$

  is

$$x = \frac{\begin{vmatrix} e & b \\ f & d \end{vmatrix}}{\begin{vmatrix} a & b \\ c & d \end{vmatrix}} \qquad\qquad y = \frac{\begin{vmatrix} a & e \\ c & f \end{vmatrix}}{\begin{vmatrix} a & b \\ c & d \end{vmatrix}}.$$

  where

$$\begin{vmatrix} a & b \\ c & d \end{vmatrix} = ad - bc.$$

- State the definition of the Wronskian of two functions f and g.

  Solution:

$$W = \begin{vmatrix} f & g \\ f' & g' \end{vmatrix}$$