Solution (4.4, Problem 2)**:** By the method of inspection, we get the general solution of

$$y(x) = c_1 \cos\left(\frac{3}{2}x\right) + c_2 \sin\left(\frac{3}{2}x\right) + \frac{5}{3}.$$

Solution (4.4, Problem 4)**:** By the method of inspection (basically just undetermined coefficients without actually going through the full steps), we get the general solution of

$$y(x) = c_1 e^{3x} + c_2 e^{-2x} - \frac{1}{3}x + \frac{1}{8}.$$

Solution (4.4, Problem 12)**:** I don't want to try to solve this one.

Solution (4.6, Problem 2)**:**

Solution (4.6, Problem 8)**:**

Solution (4.6, Problem 14)**:**

Solution (4.6, Problem 31)**:**

Solution (4.7, Problem 4)**:**

Solution (4.7, Problem 10)**:**

Solution (4.7, Problem 12)**:**

Solution (4.7, Problem 14)**:**

Solution (4.7, Problem 16)**:**

Solution (4.7, Problem 18)**:**

Solution (4.7, Problem 32)**:**