Math 256 Problem Set IX
Due March 29

6^{th} edition page 588 # 10,12a),d),13a),15,17,18a)
$= 5^{\text{th}}$ edition page 550 # 2,5a),d),6a),8,10,11a)
$= 4^{\text{th}}$ edition page 557 # 2,4a),d),5a),7,9,10a)
$= 3^{\text{rd}}$ edition page 489 # 2,4a),d),5a),7,9,10a)

Old Exam Problem
Find the vertical vibration $u(x,t)$ of a homogeneous string fixed at the ends $x = 0$ and $x = \ell$ in a medium which gives resistance proportional to the velocity of the string. Initially the string has zero velocity and deflection

$$u(x,0) = \sin\left(\tfrac{\pi x}{\ell}\right) + 2\sin\left(\tfrac{2\pi x}{\ell}\right)$$

The governing partial differential equation is

$$\tfrac{1}{c^2}u_{tt} = u_{xx} - 2\nu u_t \qquad\qquad 0 < x < \ell,\ 0 < t$$

with $0 < \nu < \frac{\pi}{\ell c}$.

The Final Exam is on Tuesday, April 18 at 8:30 am in OSBO A.