1. Solve the pde
$$\frac{\partial u}{\partial x} + 2\frac{\partial u}{\partial y} = 0.$$

2. Show that, for any differentiable function f, $f(y-2x)$ is a solution of the pde in the previous problem.

3. Solve the pde
$$3\frac{\partial u}{\partial x} - 4\frac{\partial u}{\partial y} = 0$$
if the initial condition is $u(x,0) = e^x$.

4. Solve the pde
$$3\frac{\partial u}{\partial x} - 4\frac{\partial u}{\partial y} = 0$$
if the initial condition is $u(x,y) = \sin(x)$ on $2x + y = 1$.

5. Solve the inhomogeneous pde
$$2\frac{\partial u}{\partial x} + 3\frac{\partial u}{\partial y} = x.$$