You must attach this page to your homework set. You must print <u>complete</u> names clearly, and the person who wrote up the problems should sign as writer. Please put problems in order and staple in upper left-hand corner.
(Print names)

1. ———————————————   2. ———————————————

3. ———————————————

Writer: ————————————

Group Number ——————

1. Show that $y = e^{3t} + \frac{2}{3}e^{-t} - \frac{2}{3}e^{2t} - te^{2t}$ is a solution to

$$y'' - 2y' - 3y = 3te^{2t}$$
$$y(0) = 1$$
$$y'(0) = 0$$

2. Show that $u = 2e^{-4\pi^2 t}\sin \pi x$ is a solution to

$$u_t = 4u_{xx}$$
$$u(0,t) = u(3,t) = 0$$
$$u(x,0) = 2\sin \pi x$$

3. Solve the first order separable equation

$$\frac{dX}{dt} = X^2 \qquad X(0) = x_0$$

4. Solve the first order separable equation

$$\frac{dX}{dt} = tX \qquad X(0) = x_0$$