Differential Equations   **Worksheet 4**   Name:

1. Solve following homogeneous differential equations.

   (a) $(2x + y)dx - (2y - x)dy = 0$.

   (b) $(2\sqrt{xy} - x)dy + ydx = 0$.

   (c) $(x^3 + y^3)dx + 3xy^2dy = 0$.

   (d) $xydy - y^2dx = (x + y)^2 e^{-y/x}dx$.

   (e) $xydx - (x^2 + 3y^2)dy = 0$.

2. Solve following Bernoulli Differential equations.

   (a) $\dfrac{dy}{dx} - \dfrac{2}{x}y = y^4$.

   (b) $(2xy^5 - y)ydx + 2xydy = 0$.

   (c) $\cos x \dfrac{dy}{dx} - y\sin x = -y^2$.

   (d) $y' - y = xy^2$.