Meeting 5 Worksheet (7/7/22)

1. Determine whether the following equations are exact. If it is exact, find the solution:

   (a) $(2x+3)+(2y-2)y'=0$

   (b) $(2x+4y)+(2x-2y)y=0$

   (c) $(\frac{y}{x}+6x)\,dx+(\ln x-2)\,dy=0$

   (d) $\frac{x\,dx}{(x^2+y^2)^{3/2}}+\frac{y\,dy}{(x^2+y^2)^{3/2}}=0$

2. Show that the equation $y\,dx+(2x-ye^y)\,dy=0$ is not exact, but becomes exact when multiplied by the integrating factor $\mu(x,y)=y$. Solve the resulting equation. Is this a solution to the original equation?