

Math 3298 Worksheet 26

Group members (2 to 4): \_\_\_\_\_

(1) For the following vector fields, determine whether or not the vector field is conservative (i.e. it can be written as a gradient of a scalar function). If it is conservative, construct a potential function and use it to evaluate the vector line integral  $\int_C \vec{F} \cdot d\vec{r}$  where  $C$  is a path starting at  $(1, 1)$  and ending at  $(2, 2)$ .

(a)  $\vec{F} = (1, 0)$ .

(b)  $\vec{F} = (y, x + 1)$ .

(c)  $\vec{F} = \left(\frac{1}{y} - 2x, y - \frac{x}{y^2}\right)$ .