

Solutions to the True/False Exercise (Lecture #13)

1. T

2. F (see Examples 3 and 4 in Lecture #11)

3. T (incl. of path \iff conservative)

4. T (because \mathbb{R}^2 is simply connected)

5. F (check the partials! $\frac{\partial P}{\partial x} = \frac{\partial^2 f}{\partial x^2} \neq \frac{\partial^2 f}{\partial y^2} = \frac{\partial Q}{\partial y}$)

6. T (incl. of path \implies conservative $\implies \frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$)

7. T (conservative $\iff \int_C \vec{F} \cdot d\vec{r} = 0$ on every closed path in D)

8. F (need simply connected!)

9. F (check the partials!)

10. F ($\frac{\partial P}{\partial y} = \frac{\partial Q}{\partial x}$ throughout \tilde{D} . Since \tilde{D} contains D , this can't be true!)