"QUIZ" for Lecture 15

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E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: qXFirstLast.pdf) ASAP BUT NO LATER THAN Oct. 29, 8:00pm

1. Use polar coordinates to compute the double integral

$$\iint_D xy\, dA \quad ,$$

where

$$D = \{(x, y) \mid x^2 + y^2 \leq 1,\ x \geq 0,\ y \geq 0\} \quad .$$

$$\int_0^{\frac{\pi}{2}} \int_0^1 \frac{r^3 \sin 2\theta}{2} dr\, d\theta = \frac{1}{8}$$

2. Evaluate the iterated integral by converting it to polar coordinates

$$\int_0^1 \int_0^{\sqrt{1-y^2}} e^{x^2+y^2}\, dx\, dy \quad .$$

Note: The previous version had a typo ($dy\, dx$ instead of $dx\, dy$, that made it nonsense). I thank Yidi "Wendy" Weng for pointing it out (and see won a dolllar).

$$\int_0^{\frac{\pi}{2}} \int_0^1 r * e^r dr\, d\theta = e^{\frac{\pi}{2}} - 1$$