MATH 16B - WORKSHEET 3

1 Compute all first order partial derivatives for the following functions

i $f(x,y) = \frac{\ln(xy)}{\sin(x+y)}$

ii $f(x,y) = \cos(e^x y + 1)$

iii $f(x,y) = xz(xy - e^{xy})$

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i Compute $\int\int_D (x^2 + y^2)dxdy$ where D is the rectangle bounded by the lines $x = 1$, $x = 3$, $y = 0$ and $y = 1$.

ii Compute the following double integral $\int\int_R (x + y)^2 dxdy$ where R is the region enclosed by $y = x$, $y = 4$ and $x = -1$.

iii Compute the area under the graph $y = \frac{1}{x} + x^2$ between $x = 1$ and $x = 3$

iv Compute $\int\int_D xydxdy$ where D is the region bounded by $y = x^3$ and $y = \sqrt{x}$.