MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

SECTION 2.6 **Math 2000 Worksheet** FALL 2018

For practice only. Not to be submitted.

1. Compute $\int f(x,y)\,dx$ and $\int f(x,y)\,dy$ for each of the following functions.

   (a) $f(x,y) = \dfrac{y}{x^2+y^2}$

   (b) $f(x,y) = xy\ln(x)$

2. Evaluate each of the following iterated integrals over rectangles.

   (a) $\displaystyle\int_0^{\pi}\int_0^{4} y\cos\left(\frac{x}{4}\right)\,dy\,dx$

   (b) $\displaystyle\int_{-2}^{1}\int_0^{6} \frac{4y+3}{7-x}\,dx\,dy$

   (c) $\displaystyle\int_1^{5}\int_0^{\frac{\pi}{4}} 3y^2\sec^2(x)\,dx\,dy$

3. Evaluate $\displaystyle\iint_R (x^2 - xy + y^3 - 4)\,dA$ where $R : [-1,2]\times[-2,1]$.

4. Compute the area V of the region which lies under the surface $z = \dfrac{x^2}{\sqrt{9-y^2}}$ and above the rectangle $R : [-3,3]\times\left[0,\frac{3}{2}\right]$.