BRAC
UNIVERSITY

Inspiring Excellence

Department of Mathematics and Natural Sciences

MAT 120

ASSIGNMENT 4

FALL 2020

SET: 4

Please write your Name, ID and Section on the first page of the assignment answer script - you have to do this for both handwritten or LaTeX submission. The last date of submission is "02/11/2020". Solve all problems.

You can only submit a PDF file - image or doc files won't be accepted. Before submitting the PDF, please rename the PDF file in the format - SET_ID_SECTION.

Answer the questions by yourself. Plagiarism will lead to an F grade in the course. **Total marks is "250".** *It will be converted to 25 and if you do your work using LaTeX you will get a bonus 50 marks. Which will be converted to 5. So highest marks you can get out of 25 is 30 provided you do everything correct and you submit your assignment in*

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1. Evaluate the double integral $\iint_R (3x - 2y) \, dA$; R is the region enclosed by the circle $x^2 + y^2 = 1$.

2. Evaluate the double integral $\iint_R y \, dA$; R is the region in the first quadrant enclosed between the circle $x^2 + y^2 = 25$ and the line $x + y = 5$.

3. Evaluate the double integral $\iint_R x(1+y^2)^{-1/2} \, dA$; R is the region in the first quadrant enclosed between $y = x^2$, $y = 4$ and $x = 0$.

4. Evaluate the double integral $\displaystyle\int\int_R x\cos y\, dA$; R is the triangular region bounded by the lines $y = x$, $y = 0$ and $x = \pi$.

5. Evaluate the double integral $\displaystyle\int\int_R x\, dA$; R is the triangular region bounded by $y = \sin^{-1} x$, $y = 0$ and $x = 1/\sqrt{2}$.