

Assignment#1
MTH622 (spring 2019)

Total marks: 30

Module#1 to 54

Due date: May 27, 2019

DON'T MISS these important instructions:

- Upload assignments properly through LMS.
- All students are directed to use the font and style of text as is used in this document.
- This is an individual assignment, not group assignment, so keep in mind that you are supposed to submit your own and self-made assignment even if you discuss the questions with your class fellows. All similar assignments (even with some meaningless modifications) will be awarded zero marks and no excuse will be accepted. This is your responsibility to keep your assignment safe from others.
- Solve the assignment on MS word document.

Question#1

Find the directional derivative of $\varphi = \sin\left(\frac{x}{y}\right)$ in the direction of $\vec{u} = \hat{i} - 3\hat{j} + 2\hat{k}$.

Question#2

Let $\vec{F} = 8xyz$

Evaluate $\iiint_R \vec{F} dV$ where V is the region bounded by the surfaces $x=0$, $y=0$, $y=3$, $z=x^2$, $z=16$

Question#3

If $\varphi = 5x^2yz$ and C is the curve $x=t^2$, $y=2t$, $z=t^3$ from $t=0$ to $t=1$.

Evaluate the line integral $\int_c \varphi \cdot d\vec{r}$