

Hello. Please write DNE in a blank if the described object does not exist or if the indicated operation cannot be performed.

G1: Show no work.

a In \mathbb{R} , the “punctured interval” $S := [3, 8] \setminus \{7\}$ is an \mathcal{F}_σ -set because

we can write $S =$

.....

b Poly $\beta(x) := x^{19} + x^{86}$ has 5th derivative,
 $\beta^{(5)}(x) =$ (Coeffs ITOf prods and
..... quotients of factorials.)

Our integral-formula of the 5th Remainder-term, centered at 7, evaluated at 3, is

$\mathbf{R}_{5,7}^\beta(3) = \int_{\textcolor{red}{\cdot\cdot\cdot}}^{\textcolor{red}{\cdot\cdot\cdot}} \cdot dt.$

c Let $h := [y \mapsto 7 + \sin(2y)]$. Then the 5-topped poly
 $\mathbf{T}_{5,\pi}^h(x) =$

[Hint: The center of expansion is π , not zero.]

d P.L fncs $f_n \xrightarrow[n \rightarrow \infty]{\text{ptwise}} \mathbf{0}$ have $[\int_0^5 f_n] = n^3$. The cutpoint and height tuples of f_n are

$$\vec{p}_n := (0, \textcolor{red}{\cdot\cdot\cdot}, 5 - \frac{2}{n}, \textcolor{red}{\cdot\cdot\cdot}, 5)$$

$$\text{and } \vec{h}_n := (0, \textcolor{red}{\cdot\cdot\cdot}, \textcolor{red}{\cdot\cdot\cdot}, 0).$$

And $\|f_n\|_{\sup} =$

e On the ellipse $x^2 + [\frac{y}{2}]^2 = 1^2$, the max-point of $\Gamma(x, y) := x - y$ is $(\textcolor{red}{\cdot\cdot\cdot}, \textcolor{red}{\cdot\cdot\cdot}, 0)$.

Essay question: Carefully write a triple-spaced essay solving the problem. Start each essay on a new sheet of paper.

G2: Let $J := [0, 1]$ and $K := [3, 5]$. Suppose $g: K \rightarrow \mathbb{R}$ is Lipschitz cts, with Lipschitz-constant 7. Suppose $f \in \text{RI}(J \rightarrow K)$. Let $h := g \circ f$. Prove that h is integrable. [Hint: Start with “PROOF: Fix $\varepsilon > 0$.” Perhaps define some other quantities. Now prove, given an arbitrary partition P , that $\text{Osc}^h(P) \leq \varepsilon$.]

G3: Carefully state the version of FTC from our NOTES. (Do not prove FTC.)

End of Class-G