

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

F1: Show no work.

a Blanks $\in \mathbb{R}$. So $\frac{1}{2+3i} = \underline{\dots} + i \cdot \underline{\dots}$.

And $\frac{7-2i}{2+3i} = \underline{\dots} + i \cdot \underline{\dots}$.

By the way, $|5-3i| = \underline{\dots}$.

b Let $h := [y \mapsto \cos(2y)]$. Then the 5-topped poly

$\mathbf{T}_{5,0}^h(x) = \underline{\dots}$.

c Writing poly $p(x) := 9 + 29x^2 + 49x^3 + 5x^4$ as $\sum_{k=0}^4 C_k \cdot [x+3]^k$, coeff C_3 is in: Circle one interval
 $(-\infty, -70), [-70, -15), [-15, -8), [-8, -1), [-1, 8), [8, 15), [15, 30), [30, 75), [75, 94), [94, +\infty)$.

d Poly $\beta(x) := x^9 + x^{87}$ has 9th derivative,
 $\beta^{(9)}(x) = \underline{\dots}$ (Coeffs ITOF prods and
quotients of factorials.)

Our integral-formula of the 9th Remainder-term, centered at 2, evaluated at 5, is

$\mathbf{R}_{9,2}^\beta(5) = \int_{\underline{\dots}}^{\underline{\dots}} \cdot dt.$

e Interval $J := [3, 7]$ has ptn Q with cutpoints $\{3, 5, 7\}$. Define $h := [x \mapsto x \cdot \mathbf{1}_{[3,5]}(x)]$. Then

$\mathbf{Osc}^h(Q) = \underline{\dots} + \underline{\dots}$.

Equipping Q with sample points $\{4, 5\}$, now

$\mathbf{RS}^h(Q) = \underline{\dots}$.

f On the circle $x^2 + y^2 = 1^2$, the max-point of $\Gamma(x, y) := x - 2y$ is $(\underline{\dots}, \underline{\dots})$.

End of Class-F

F1: 120pts

Poorly stapled, or
missing ordinal : -5pts

Missing name, or
honor sig : -5pts

Total: 120pts

Please PRINT your name and ordinal. Ta:

Ord:

HONOR CODE: *"I have neither requested nor received help on this exam other than from my professor."*

Signature: