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

F1: Show no work.

a Blanks∈ℝ. So $\frac{1}{2+3i}=$ .... $+i\cdot\Big[$ .... $\Big]$.

And $\dfrac{7-2i}{2+3i}=$ .... $+i\cdot\Big[$ .... $\Big]$.

By the way, $|5-3i|=$ ....

b Let $h:=\big[y\mapsto\cos(2y)\big]$. Then the 5-topped poly
$\mathbf{T}^h_{5,0}(x)=$ ....

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: $\boxed{\text{Circle } one \text{ interval}}$
$(-\infty,-70)$, $[-70,-15)$, $[-15,-8)$, $[-8,-1)$, $[-1,8)$,
$[8,15)$, $[15,30)$, $[30,75)$, $[75,94)$, $[94,+\infty)$.

d Poly $\beta(x):=x^9+x^{87}$ has 9th derivative,
$\beta^{(9)}(x)=$ ....   (Coeffs ITOf prods and quotients of factorials.)
Our integral-formula of the 9th Remainder-term, centered at 2, evaluated at 5, is

$\mathbf{R}^{\beta}_{9,2}(5)=\displaystyle\int_{[\,\cdot\,]}^{[\,\cdot\,]}$ .... $\cdot\,\mathrm{d}t$.

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

Equipping Q with sample points $\{4,5\}$, now
$\mathsf{RS}^h(Q)=$ ....

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

$\boxed{\text{End of Class-F}}$