TFA Assignment -2

① $s(t) = \left(\frac{2}{\pi}\right)^{1/4} e^{(-10t^2 + j5t^2 + j100t)}$ then find $\langle\omega\rangle$, $\langle\omega^2\rangle$ and σ_ω^2

② If $s(t) = \left[\left(\frac{3}{\pi}\right)^{1/4} e^{j m \sin c\omega_m t - 3t^2/2}\right] e^{j\beta t^2/2 + j\omega_0 t}$

calculate $\langle\omega\rangle$, $\langle\omega^2\rangle$, σ_ω^2

③ If $s(t) = \sqrt{t}\, e^{j\omega\phi(t)}$ $\quad t_1 \le t \le t_2$

Find $\langle t\rangle$, $\langle t^2\rangle$, σ_t

④ @ calculate t_0 and ~~$\langle t^2\rangle$~~ σ_t^2 for.

$s(t) = te^{j\phi(t) + j10t + j\beta\sin\omega_0 t}$ $\quad 1 \le t \le 4$

ⓑ calculate t_0 and σ_t^2 for

$s'(t) = s(t-2)$, use $s(t)$ which is given in 4(a)

⑤ $s(t) = 1 - |t|$, $\quad -\frac{T}{3} \le t \le \frac{T}{3}$

Find $\langle t\rangle$, σ_t^2, $\langle\omega\rangle$, σ_ω^2

Also find energy of signal that is E_t, E_ω