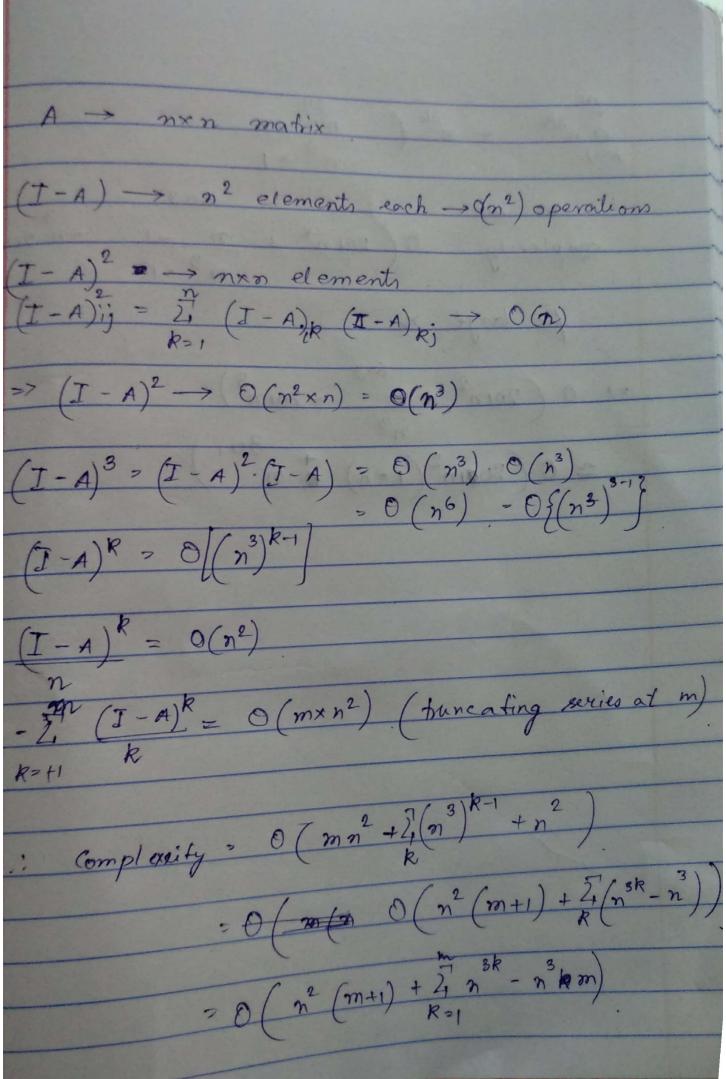
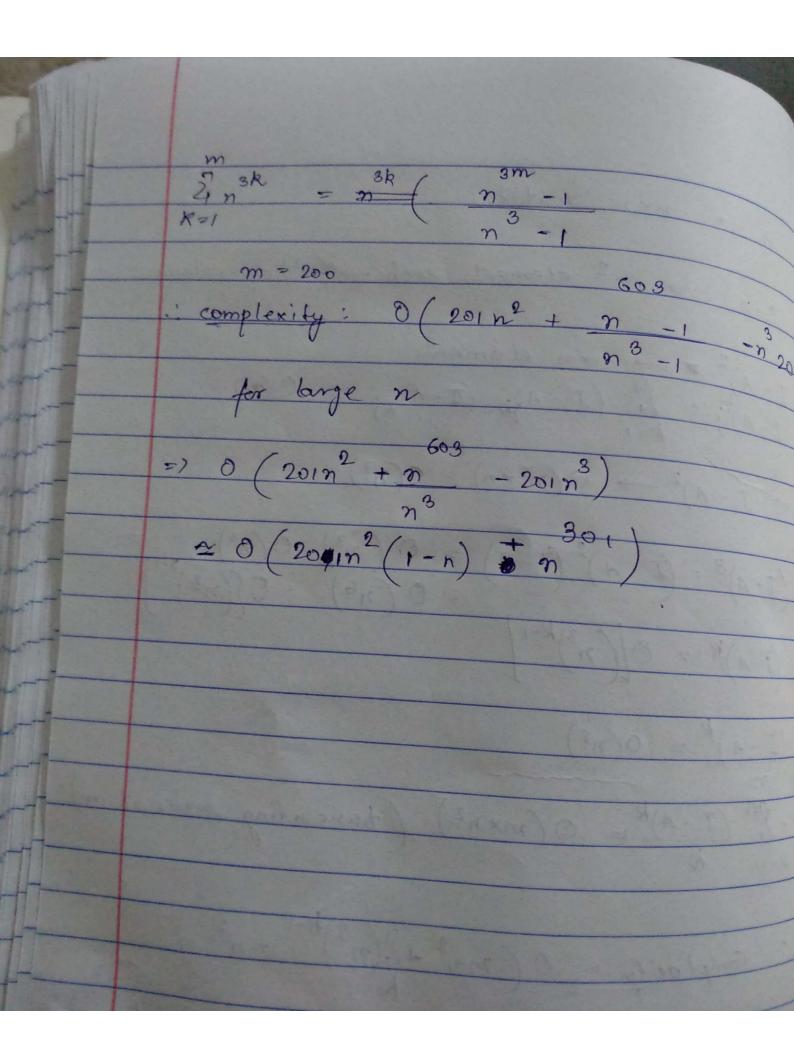
## Computational Physics 10/23/2020 Friday Midteren 1. False. It is not always better to choose a smaller At. One example is for numerical integration where change in the function is small over a large interval In that case choosing small st will inexease the run time considerably. Also, very small At gives significant round-off ever in adaptative integration 2. In non-adaptive numerical method at is constant in the simulation, whereas, in orday fatine numerical method, At is adjusted depending on the function. One disadvantage of adaptative numerical methods is that round off error becomes very significant at small line steps. For this reason it may fail to endapt a time step of desired accuracy. 36) Comparing the figures from 36 and 30 we see that the yaxis of power spectrum docreases as fraquency inexeases and after a certain value of frequency it again increases. Now, an low par filter allows only low frequency signal below a cutoff to pan, attenuating high frequency

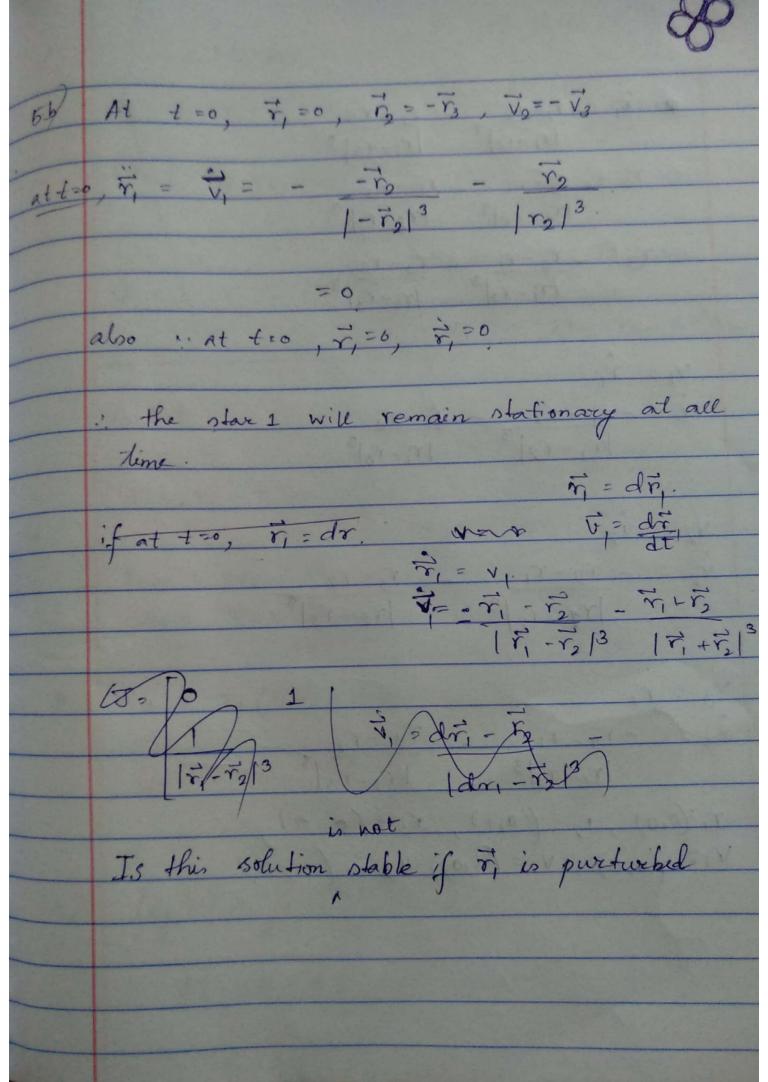
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signals Thus , it can be argued that the averaging method is an example of low pan filser (though not an ideal one) In other words without averaging, the power spectrum had same similar y aris
values, which deveased for high frequences after within an interval, which is expected from a low pan filter · Without averaging, the signal had rapid changes in magnifude which implies it had high frequery components. Averaging smoothed the signal thus bravering the some high frequency component 50, the name low-par fitter is appropriate for the averaging method. 4.9) In order for the sum to converge, 117-A11<1 => A can not be mull matrix and all its eigen values have to be the Scanned with CamScanner



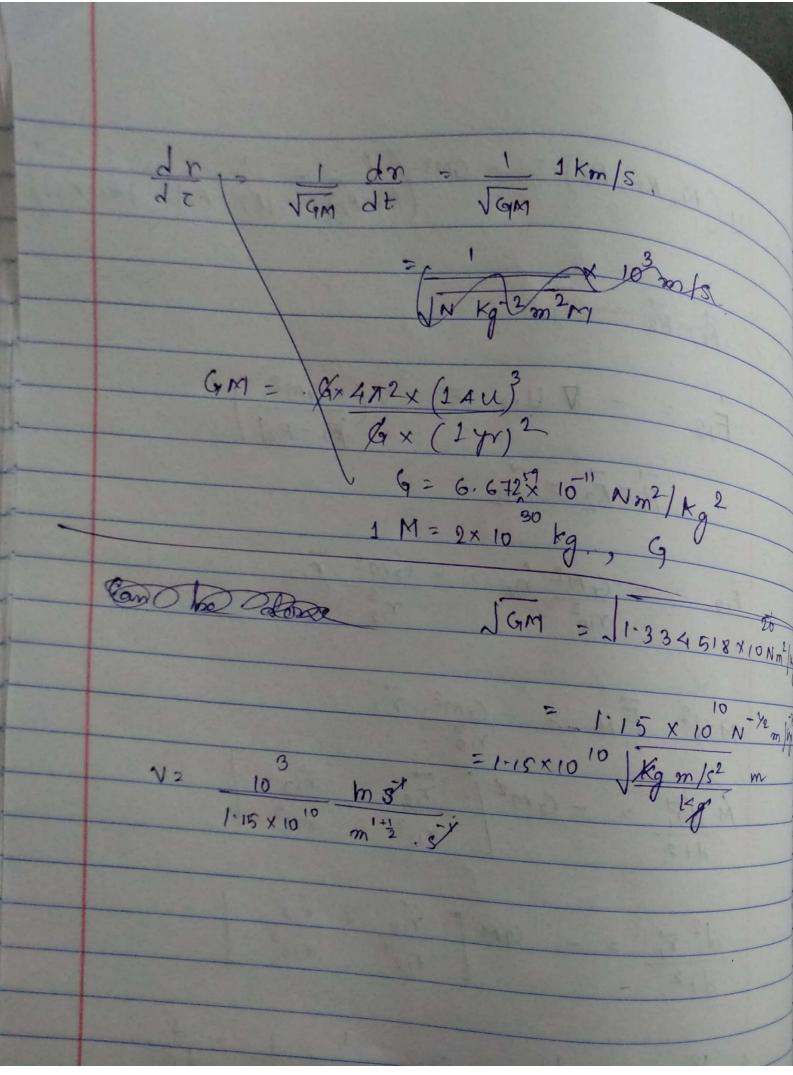
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20)	$U(R_1, R_2, R_3) = -GM^2 \left( \frac{1}{[R_1 - R_2]} + \frac{1}{[R_2 - R_3]} + \frac{1}{[R_1 - R_3]} \right)$
	$\vec{R} = \vec{R}_2 = \vec{r}_1$
	$\vec{F}_{12} = - \nabla U_{12} = - \nabla \left( \frac{-GM^2}{ R_1 - R_2 } \right)$
	$R_1 - R_2 = r_{12}$
- THE REAL PROPERTY OF THE PARTY OF THE PART	$\vec{F}_{12} = -\frac{GM^2}{\gamma_{12}^2} \hat{\gamma}_{12} = -\frac{GM^2}{\gamma_{12}^3} \vec{r}_{12}$
	$p_{000} = \vec{F}_{13} = -\frac{GM^2}{r_{13}} \vec{r}_{13}$
	$\frac{M \frac{d\vec{r}_1}{dt^2} = -GM^2 \left[ \frac{\vec{r}_{12}}{r_{12}^3} + \frac{\vec{r}_{13}}{r_{13}^3} \right]}{dt^2}$
	$\frac{d^{2}\vec{r_{1}}}{dt^{2}} = -\frac{GM}{\left[\begin{array}{cc} \vec{r_{12}} + \vec{r_{13}} \\ \vec{r_{12}}^{3} & \vec{r_{13}}^{3} \end{array}\right]}$
	$\frac{1}{4} \frac{d^2}{dt^2} = \frac{d^2}{dt^2} = \frac{d}{dt} = \frac{d}{dt}$
	$\vec{r}_{1} = -\left(\frac{\vec{r}_{1} - \vec{r}_{2}}{ \vec{r}_{1} - \vec{r}_{2} ^{3}} + \frac{\vec{r}_{1} - \vec{r}_{3}}{ \vec{r}_{1} - \vec{r}_{3} ^{2}}\right), \dots$ Scannod with Camescanner

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