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1 message

Anna Marie <annamarieam2002@gmail.com> To: subsgadget@gmail.com

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Please find your Answer below (or) in the attached Image / Document!

Expert Answer



sunieel answered this

$$X(t) = A\cos(\omega t + \Theta)$$

$$mX(t) = E[Acos(\omega t + \Theta)] = \frac{1}{2\pi} \int_0^{2\pi} Acos(\omega t + \Theta)$$
 a)mean:-

b)autocorrelation function of X(t)= $RX(t1,t2)=A^2E(cos(\omega t1+\Theta)cos(\omega t2+\Theta))$

$$\underbrace{\frac{A^2}{2\pi}}_{=2\pi} \int_0^{2\pi} \frac{\cos(\omega(t1-t2)+\cos(\omega(t1+t2)+\Theta))}{2} d\Theta$$

$$= \frac{A^2}{2} cos(\omega(t1-t2))$$

c)WSS process

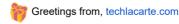
X(t) is a wide sense stationary process if

mean =m for all t

and, covariance Cx(t1,t2)=Cx(t1-t2)

thus it can be seen from the above deriavtion both the condition are satisfied therefore it WSS process

Tip: We usually send the answers as images, texts within the email body, or in the html format (make sure you download the attached file and open with any of the web browsers like Chrome, Firefox to view the solution).



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