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## Problem 6.34(b)

Does anyone know how to find the answers for 6.34b? I was able to find the answers online ( $E(Y) = \frac{\sqrt{\pi\theta}}{2}$  and  $Var(Y) = (1 - \frac{\pi}{4})\theta$ ) but not how to get them.

hw1

Edit good question | 0

Updated 5 years ago by Charles Hwang

S the students' answer, where students collectively construct a single answer

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$h^{-1}(u) = \text{sqrt}(u); dh/du = (1/2) * (1/\text{sqrt}(u));$

Plugging that in using the transformation method should result in the following (after cancellations):

$f_Y(u) = (1 / \theta) * e^{-u / \theta}$

That should look familiar. Too lazy to bother with Latex right now, sorry.

My bad. Misread the question. :(

Another edit:

You have to use properties of gamma functions when calculating  $E[Y] = E[\text{sqrt}(U)]$ . Basically it's a bunch of cancellations, since  $\text{gamma}(z)$  is equal to the integral of  $x^{z-1} * e^{-x}$

No clue if you've used gamma functions before. I certainly haven't, so it was a goddamn mess.

Edit thanks! | 0

Updated 5 years ago by Grady Flanary

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