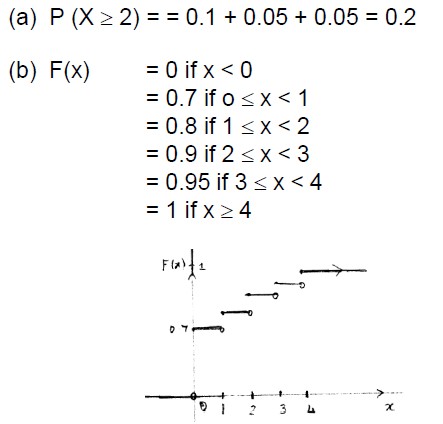
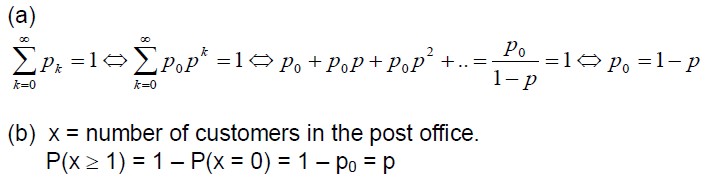
EMTH1019 Linear Algebra and Statistics for Engineers

Workshop 2 solutions

Question 1

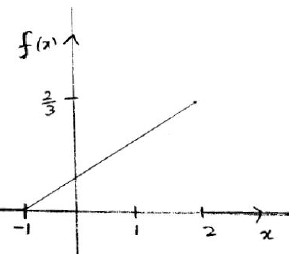


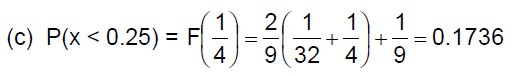
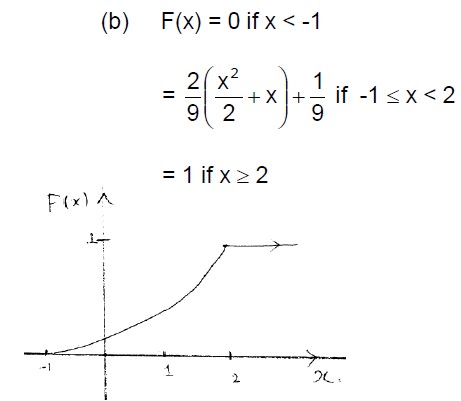
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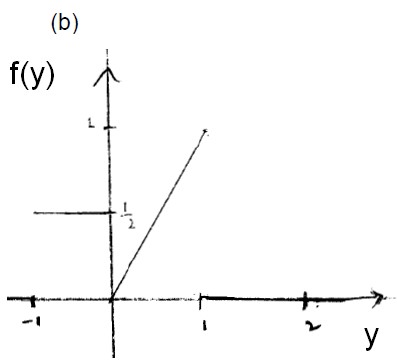
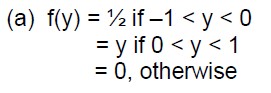
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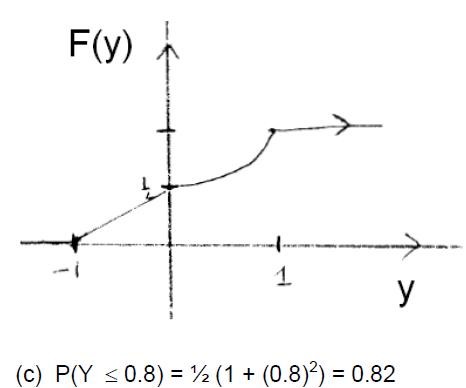
(a)



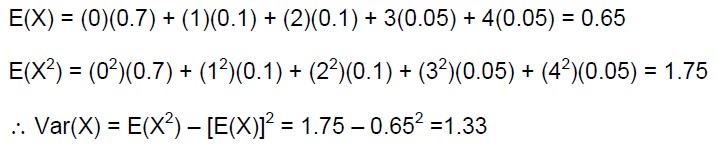


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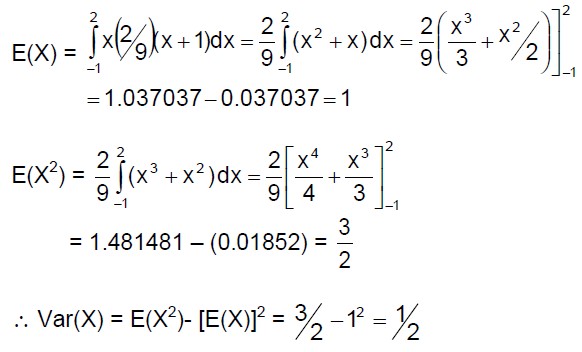




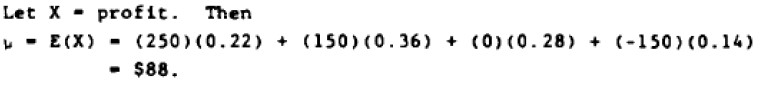
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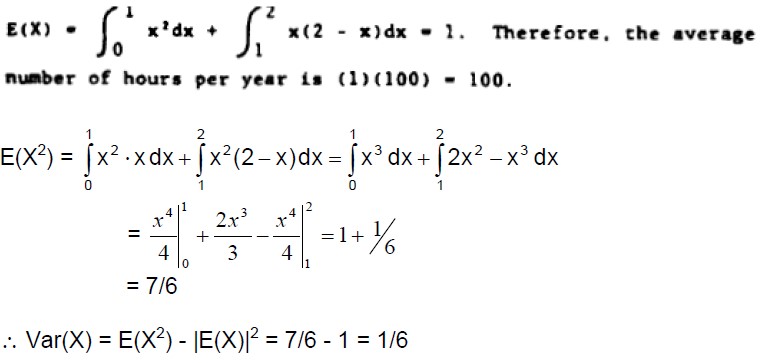
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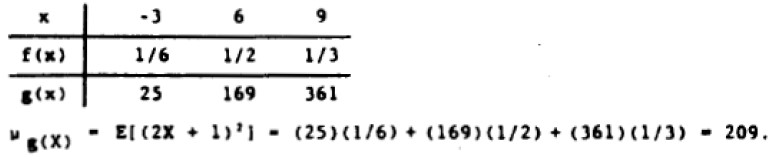
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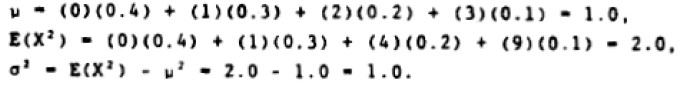
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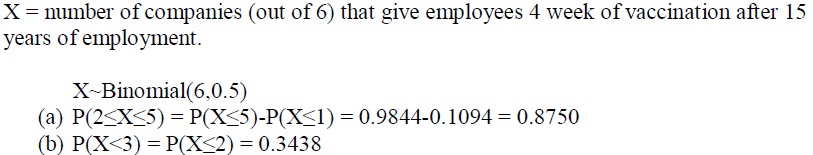
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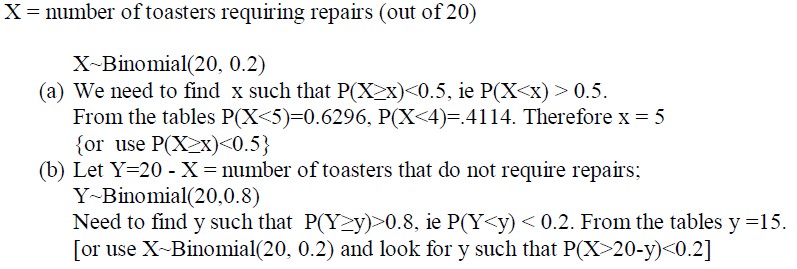
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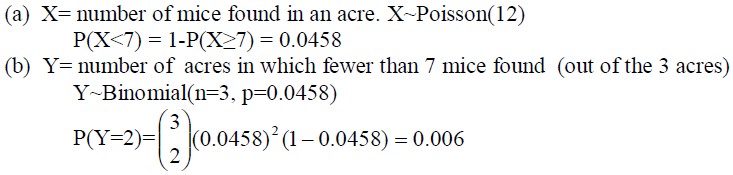
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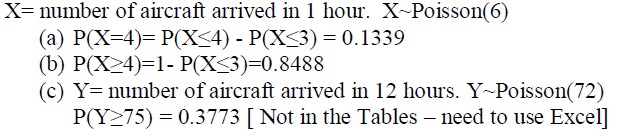
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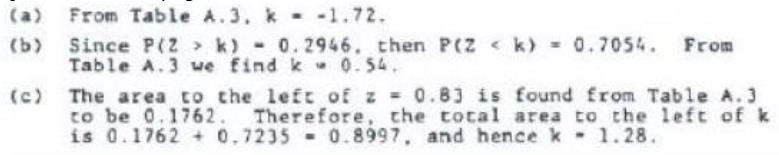
Question 13



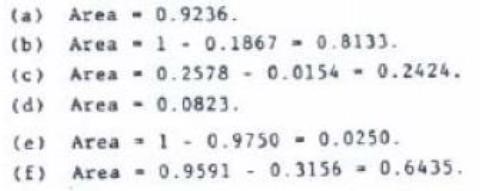
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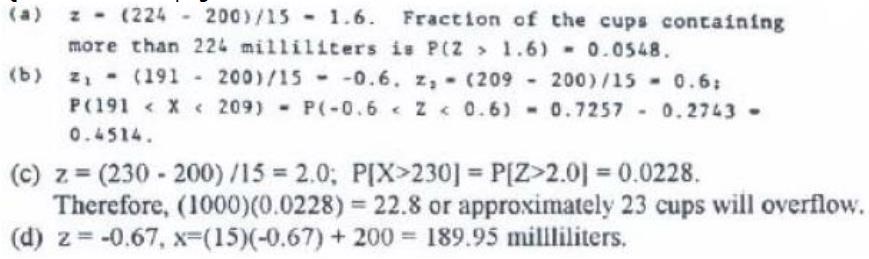
Question 15



Question 16



Question 17

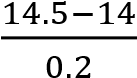


Question 18

a. The average strength 𝑋̅ has approximately a normal distribution with mean 𝜇 = 14 and standard deviation

𝑃(𝑋̅ > 14.5) =

is approximately equal to

𝑃 (𝑍 > ) = 𝑃 (𝑍 > ) = 𝑃(𝑍 > 2.5) = 0.0062.

b.

𝜎 𝜎

For a normally distributed 𝑋̅. In this problem,

and

Hence, approximately 95% of sample mean fracture strengths, for samples of size 100, should lie between 13.6 and 14.4.