Lecture 5 Worksheet

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1 For each case below, write down the PDF of gamma distribution with those parameters. Your expressions should be explicit

1.1 $\alpha = 3, \beta = 2$

$$f(X) = \frac{x^2 e^{-x/2}}{16}, x > 0, 0 \text{ otherwise}$$

1.2 $\alpha = 2, \beta = 3$

$$f(X) = \frac{x e^{-x/3}}{9}, x > 0, 0 \text{ otherwise}$$

1.3 $\alpha = 1, \beta = 2$

$$f(X) = \frac{e^{-x/2}}{2}, x > 0, 0 \text{ otherwise}$$

1.4 $\alpha = 2, \beta = 1$

$$f(X) = x e^{-x}, x > 0, 0 \text{ otherwise}$$

2 Identify which of a,b,c,d are exponential random variables and Identify the parameter λ

C is a exponential random variable with $\lambda = 2$

$$f(x) = \frac{1}{2} e^{-x/2}, x > 0, 0 \text{ otherwise}$$

3 For each case below, write down the PDF of Chi-Squared distribution with those parameters. Identify the parameter ν

A is a Chi-Squared random variable with $\nu = 6$

C is a Chi-Squared random variable with $\nu = 2$