

3. The continuous random variable X has a density given by

$$f(x) = (3/2) x^2 \text{ for } -1 \leq x \leq 1$$

a. Find the CDF of X along with its support. Check in detail that it is a CDF.

Y: 1082 1300 1092 1040 910 1248 1092 1040 1092 1288

Choose between the Z and the only t-confidence interval we discussed, explain your choice, and obtain a 98% confidence interval for the mean difference $\mu_x - \mu_y$. Present a clear confidence statement and show your computations.

b. Let $Y = 1 - X$. Find the support of Y , the CDF and the PDF of Y . Draw the density of Y .

c. Y is a function of X . Compute $E[Y]$ and $VAR[Y]$ in the quickest possible way.