

Note: Theorem 4 ½ of Hand-out 1 $\frac{e}{\pi^2}$ is the same as theorem 19 of Hand-out 3.

Note: Theorem 2.6 of Hand-out 2 is the same as theorem 4 of Hand-out 3.

There are other repetitions of theorems between and betwixt hand-outs 1 $\frac{e}{\pi^2}$, 2, and 3. Sometimes repetitions help people recall certain things.

1. Prove theorem 12 part (1) of hand-out 3 or theorem 2.10 part (1) of hand-out 2.
2. Prove theorem 13 of hand-out 3 or theorem 2.11 of hand-out 2.
3. Prove theorem 15 of hand-out 3 or theorem 2.12 of hand-out 2.
4. Prove theorem 16 of hand-out 3 or theorem 2.15 of hand-out 2.
5. Construct an example to demonstrate the claim that "Let $X \sim \text{Uni}(x, \alpha, \beta)$.
Let X_1, X_2, \dots, X_n be independent, identically distributed random variables from
 $X \sim \text{Uni}(x, \alpha, \beta)$. Let $Y_2 = \sum_{i=1}^n X_i$
it is the case that Y_2 is distributed uniformly," is **false**.
6. Prove theorem 17 of hand-out 3 or theorem 2.16 of hand-out 2.