Given the assumptions of classical test theory, answer the following:

1. If the observed score X is 85 and the error score E is 7, what is the true score T?

2. If the true score T is 32 and the observed score X is 28, what is the error score E?

3. If the true score variance σ_T^2 is 10 and the observed score variance σ_X^2 is 12, what is the error score variance σ_E^2?

4. If the observed score variance σ_X^2 is 16 and the true score variance σ_T^2 is 9, calculate the correlation between observed scores X and true scores T.

5. If the error score variance σ_E^2 is 3 and the true score variance σ_T^2 is 8, calculate the reliability coefficient $\rho_{XX'}$.

6. If the observed score variance σ_X^2 is 15 and the error score variance σ_E^2 is 2, calculate the reliability coefficient $\rho_{XX'}$.

Suppose we have a test X with reliability coefficient $\rho_{XX'} = 0.75$ and we calculate an observed score variance of 32.

1. Calculate and interpret the values of σ_T^2/σ_X^2, σ_E^2/σ_X^2, ρ_{XT}, and ρ_{XE}

2. Calculate the true-score variance and the error variance.

3. Calculate the expected measurement error of our test X.

Suppose we have a test X with reliability coefficient $\rho_{XX'} = 0.40$ and we calculate an observed score variance of 84.

1. Calculate the true-score variance and the error variance.

2. Calculate expected measurement error for our test X.

3. Suppose someone scores 75 on this test. Calculate a 95% confidence interval for their true score.