Quiz 4

Let X_1, X_2 be 2 random samples from population w/ mean $= 0$, variance $= \theta^2$

$\rightarrow$ $X_1^2 + 3X_2^2 / 4$, show it is unbiased estimator for θ^2

$E(X_1^2) = 0 + \theta^2$

$E(Y_2^2) = 0 + \theta^2$

$E\left(X_1^2 + 3X_2^2 / 4 \right) = \frac{1}{4}(\theta^2) + \frac{3}{4}(\theta^2)$

$= \theta^2$