In practice, a quarterback attempts four field goals. At each attempt, the quarterback has a probability 0.8 of actually making the shot. Therefore, the quarterback will make 0, 1, 2, 3, or 4 field goals.

1. Give the probability density function of the number of goals that the quarterback makes.

2. Give the distribution function of the number of goals that the quarterback makes.

3. Calculate the expected number of goals that the quarterback makes.

4. Calculate the variance of the number of goals that the quarterback makes.

5. Calculate the standard deviation of the number of goals that the quarterback makes.

6. You made one implicit assumption when doing the calculations of 1, 2, 3, and 4. What assumption am I referring to?