

This quiz covers material from **appendix D** and **section 8.5**. Show your work.

1. (*3 points*) A basketball stadium has enough seats for 20,000 fans. There are 100 seats that are broken in one way or another.

a. (*1 pt*) If you buy four tickets for you and your friends, what is the probability that everyone (exactly four people) has a broken seat?

b. (*1 pt*) If you buy four tickets for you and your friends, what is the probability that someone (at least one person) has a broken seat?

c. (*1 pt*) Section F contains 300 seats. What is the expected number of broken seats in section F?

2. (*3 points*) Suppose X is a normal random variable with $\mu = 20$ and $\sigma = 12$. Find the value of

a. (*2 pts*) $P(X < 35)$

b. (*1 pt*) $P(X > 8)$

3. (*2 points*) Suppose Z is a standard normal variable. Find the value of z if z satisfies $P(Z > z) = .2611$.