MAT 223, Paper Quiz #6, Spring 2017 Name KEY

Instructions: Show all work. Use exact answers unless specifically asked to round. Explain thoroughly using complete sentences.

1. Taranique loves to play the floating duck game at the carnival. For $2 per try, she might pick one of the 8 winning ducks out of the 50 floating in the water. If the value of the prize is $5, what is the expected value of the game?

$3\left(\frac{8}{50}\right) - 2\left(\frac{42}{50}\right) = -1.2$

$= \$1.20$ down for every attempt

2. In a pediatrician's office, the probability of a "no show" for any check-up appointment on any given day is 1 of 10. Suppose there are 18 appointments for one day.
   a. What is the probability that fewer than 4 do not show? $P=\frac{1}{10}, n=18$

$P(x<4) = \text{binomialcdf}(18, 1/10, 3) = .9018$

   b. What is the probability that at least 2 don't show?

$P(x \geq 2) = 1 - P(x \leq 1) = 1 - \text{binomialcdf}(18, 1/10, 1)$

$= .5497$

   c. What is the probability the doctor sees every patient scheduled?

$P(x=0) = \text{binomialpdf}(18, 1/10, 0) = .1501$

3. Men's heights are distributed normally with a mean of 69 inches and a standard deviation of 3 inches. The father of one of the children in your class is 6'5''. What is the z-score that represents his height?

$6 \times 12 + 5 = 77$ inches

$\frac{77-69}{3} = 2.67$