Math 301 P & S I Fall 2008 Worksheet IV Name:_____
(please print legibly)

Show all work. If an answer DNE, explain why it does not exist.

1. Consider the following probability mass function (pmf) :

X = x	–2	–1	0	1	2	3
Pr(X = x)	0.05	0.11	0.56	0.18	0	0.1

Graph the probability mass function associated with X, find the cumulative distribution function associated with X, and graph the cumulative distribution function associated with X.

2. Consider the following probability mass function (pmf) :

Y = y	½	3	8	9	10
Pr(Y = y)	0.25	0.25	0.4	0.05	0.05

Graph the probability mass function associated with Y, find the cumulative distribution function associated with Y, and graph the cumulative distribution function associated with Y.

3. An urn contains 4 red balls, 3 green, and 5 black balls. A ball is picked. Record the number of red balls obtained on the pick and name the variable R, Find the probability mass function associated with R, graph the probability mass function associated with R, find the cumulative distribution function associated with R, and graph the cumulative distribution function associated with R.

4. An urn contains 4 red balls, 3 green, and 5 black balls. Three balls are picked. Record the number of black balls obtained on the pick and name the variable B, Find the probability mass function associated with B, graph the probability mass function associated with B, find the cumulative distribution function associated with B, and graph the cumulative distribution function associated with B

5. A fair coin is to be flipped five times. Record the number of heads obtain and name the variable H,
Find the probability mass function associated with H, graph the probability mass function associated with H, find the cumulative distribution function associated with H, and graph the cumulative distribution function associated with H.

6. Consider the following probability mass function: $f : \mathbb{N}_5 \longrightarrow [0, 1]$ $f(x) = \frac{1}{5}$

Find:
A. Pr(X = 3) B. Pr(X > 3) C. Pr(|X| ≤ 2) D. Pr(X + 3 = 10)
E. the cumulative distribution function, F(X ≤ x).

7. Consider the following probability mass function: $h : \mathbb{R} \longrightarrow \mathbb{R}$ $f(x) = \frac{1}{5}$ ∋ $x \in \mathbb{N}_5$ $f(x) = 0$ else

Find:
A. Pr(X = 3) B. Pr(X > 3) C. Pr(|X| ≤ 2) D. Pr(X + 3 = 10)
E. the cumulative distribution function, F(X ≤ x).

8. Consider the following probability mass function: $g : \mathbb{R} \longrightarrow [0, 1]$ ∋

$$g(x) = \begin{cases} \binom{6}{x}\frac{1}{5^x}\cdot\left(\frac{4}{5}\right)^{(6-x)} & x = 0,1,2,3,4,5,6 \\ 0 & \text{else} \end{cases}$$

A. Pr(X = 3) B. Pr(X > 3) C. Pr(|X| ≤ 2) D. Pr(X = 2.5)
E. the set of all values of X such that Pr(X = x) is less than ¼ . F. the cumulative distribution function, G(X ≤ x).