Name:\_\_\_\_\_ Date: 3/5/2025 Math 130 Quiz 7

Some formulas you may need:

$$EV = \mu = \sum xp(X = x)$$
  $Var = \left[\sum x^2 p(X = x)\right] - \mu^2$   $\sigma = \sqrt{\left[\sum x^2 p(X = x)\right] - \mu^2}$ 

1. (2, 3, 2, 1) In this problem we are going to analyze the "field" bet in craps (where you roll a pair of dice). If you are playing craps and make the field bet,

You will win twice your bet if you roll a total of 2 You will win the amount that you bet if you roll a total of 3, 4, 9, 10, or 11 You will win three times your bet if you roll a total of 12 You will lose your bet if you roll anything else

Suppose you bet \$100 on the field bet. Let *X* denote the amount of money you win when playing this game once.

a) Find the probability distribution for *X*.

b) Find the expected value, variance and standard deviation of X.

c) Explain in words the meaning of the expected value calculated in part (b)

d) Is this a good game for you to play? Why or why not?

2. (2 points) Consider the experiment where you flip a single coin 3 times. Define a random variable on this experiment.