Statistics XP 2015 - Quiz 1

NAME: _____

You have 15 minutes.
Each question is worth 2 points.

I pledge my honor that I have not violated the Honor Code
during this examination.

SIGNATURE: _____

1 Question

Suppose we think the probability the Hawks win their next game is .6.

Let $W \sim$ Bernoulli(.6) be the random variable which is 1 if Hawks win and 0 else.

Suppose I have a bet with a friend that pays me \$5 if the Hawks win and -\$10 if they lose.
Let B be the outcome of the bet.

1.1

What is the linear function relating B to W?

1.2

What are the mean and standard deviation of W?

1.3

What are the mean and standard deviation of B?

2 Question

As in the notes, let A be the random variable with distribution:

$$E(A) = .068, \;\; Var(A) = .003136, \;\; sd(A) = 0.056$$

Suppose you put 20% your money into the riskless asset with return .02 for sure and the rest of your money into the risky asset with random return A. Thus, the portfolio weight for the riskless asset is .2 and the weight for the risky asset is .8.

Let the return on your porfolio be denoted by P.

2.1

What is the linear function relating P to A?

2.2

What are the mean and standard deviation of P?

2.3

Suppose you invest \$100 in P.

Let W denote the amount of money you have at the end of the period.

Hence $W = 100(1 + P)$.

What are the mean and variance of W?