Practice worksheet | Discrete probability distributions

Sums of independent variables

Name: _____ Date: _____

6 questions | 15 marks

1. Independent X and Y have means 4, 7 and variances 1, 9. Find the mean and variance of X + Y. [2 marks]

2. Using the same X and Y, find the mean and variance of $3X - 2Y + 5$. [3 marks]

3. Five independent copies of X each have mean 2 and variance 3. Find the mean and variance of their sum. [2 marks]

4. For those five independent copies, find the mean and variance of their average. [3 marks]

5. Independent fair dice are rolled. Let X and Y be their scores. Find P(X + Y = 5). [2 marks]

6. A supplier gives E(X) = 8, E(Y) = 3, Var(X) = 4 and Var(Y) = 2, but does not state independence. Which of E(X + Y) = 11 and Var(X + Y) = 6 is justified? [3 marks]