Practice worksheet | Discrete probability distributions

Effects of scale/shift

Name: _____ Date: _____

6 questions | 14 marks

1. E(X) = 5 and Var(X) = 4. Find E(2X + 3) and Var(2X + 3). [2 marks]

2. E(X) = 8 and SD(X) = 3. Find the mean and SD of Y = 10 − X. [2 marks]

3. A random length X in metres has mean 1.2 and variance 0.04. Convert both to centimetre-based quantities. [3 marks]

4. A score X has mean 50 and SD 10. Find mean and variance of $Z = (X - 50)/10$. [2 marks]

5. X is -2 or 2 with equal probabilities. Find $E(X^2)$. Explain why squaring E(X) gives the wrong answer. [3 marks]

6. X is 1, 2 or 4 with probabilities 0.2, 0.5, 0.3. For $Y = 6 - X$, find $P(Y \geq 4)$. [2 marks]