6. The random variable X has a discrete uniform distribution where

$$P(X = x) = \frac{1}{5} \qquad \text{for } x = 1, 2, 3, 4, 5$$

(a) Find $P(X + 2 < 3X - 4)$

(2)

(b) Find $E(X^2)$

(2)

Given that $E(aX + 5) = 6$ where a is a constant,

(c) find the value of $Var(3 - aX)$
You must show your working.

(6)

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Question 6 continued

(Total for Question 6 is 10 marks)