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$$P(X = x) = \begin{cases} a(3-x) & x = 0, 1, 2 \\ b & x = 3 \end{cases}$$

(a) Find  $P(X = 2)$  and complete the table below.

$x$	0	1	2	3
$P(X = x)$	$3a$	$2a$		$b$

(1)

Given that  $E(X) = 1.6$

(b) Find the value of  $a$  and the value of  $b$ .

(5)

Find

(c)  $P(0.5 < X < 3)$ ,

(2)

(d)  $E(3X - 2)$ .

(2)

(e) Show that the  $\text{Var}(X) = 1.64$

(3)

(f) Calculate  $\text{Var}(3X - 2)$ .

(2)

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