5. A red spinner is designed so that the score R is given by the following probability distribution.

r	2	3	4	5	6
$P(R = r)$	0.25	0.3	0.15	0.1	0.2

(a) Show that $E(R^2) = 15.8$

(1)

Given also that $E(R) = 3.7$

(b) find the standard deviation of R, giving your answer to 2 decimal places.

(2)

A yellow spinner is designed so that the score Y is given by the probability distribution in the table below. The cumulative distribution function $F(y)$ is also given.

y	2	3	4	5	6
$P(Y = y)$	0.1	0.2	0.1	a	b
$F(y)$	0.1	0.3	0.4	c	d

(c) Write down the value of d

(1)

Given that $E(Y) = 4.55$

(d) find the value of c

(5)

Pabel and Jessie play a game with these two spinners.
Pabel uses the red spinner.
Jessie uses the yellow spinner.
They take turns to spin their spinner.
The winner is the first person whose spinner lands on the number 2 and the game ends.
Jessie spins her spinner first.

(e) Find the probability that Jessie wins on her second spin.

(2)

(f) Calculate the probability that, in a game, the score on Pabel's first spin is the same as the score on Jessie's first spin.

(3)

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Question 5 continued

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Question 5 continued

(Total for Question 5 is 14 marks)

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