

5. Manon has two biased spinners, one red and one green.

The random variable R represents the score when the red spinner is spun.

The random variable G represents the score when the green spinner is spun.

The probability distributions for R and G are given below.

r	2	3
$P(R = r)$	$\frac{1}{4}$	$\frac{3}{4}$

g	1	4
$P(G = g)$	$\frac{2}{3}$	$\frac{1}{3}$

Manon spins each spinner once and adds the two scores.

- (a) Find the probability that

- (i) the sum of the two scores is 7
- (ii) the sum of the two scores is less than 4

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The random variable $X = mR + nG$ where m and n are integers.

$$P(X = 20) = \frac{1}{6} \quad \text{and} \quad P(X = 50) = \frac{1}{4}$$

- (b) Find the value of m and the value of n

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