Probability with Algebra

Edexcel

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Shamsa takes at random 2 balls from the bag.

Show that the probability that both balls are the same colour is $\frac{n}{2n+1}$

(Total for Question 15 is 4 marks)

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and = ×

or = +

Red = n

blue = n + 1

total = 2n + 1

Red and Red **or** Blue and Blue

$\dfrac{n}{2n+1} \times \dfrac{n-1}{2n}$ + $\dfrac{n+1}{2n+1} \times \dfrac{n}{2n}$

$n(n-1)$

$n^2 - n$

$\dfrac{n^2-n}{(2n+1)(2n)}$ + $\dfrac{n^2+n}{(2n+1)(2n)}$

$2n^2$

$2n(n)$

$= \dfrac{2n^2}{(2n+1)2n}$

$= \dfrac{2n(n)}{(2n+1)2n}$ ✓

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