

Exercise walk-through

6.2

Probability

Pearson Edexcel · International GCSE · Mathematics A

Exercises 2.1·2.3

2.1 (Foundation) Find the probability of two red from 3 red and 2 blue without replacement.

2.2 (Foundation) Find the probability of blue on a single draw from 3 red and 2 blue.

2.3 (Foundation) Find the probability of one red and one blue in that bag.

Exercises 2.1·2.3

2.1 (Foundation) Find the probability of two red from 3 red and 2 blue without replacement.

2.1 Without replacement, $P(RR) = \frac{3}{5} \times \frac{2}{4} = 0.3$.

2.2 (Foundation) Find the probability of blue on a single draw from 3 red and 2 blue.

2.2 A single blue draw has probability $\frac{2}{(3+2)} = 0.4$.

2.3 (Foundation) Find the probability of one red and one blue in that bag.

2.3 Add the two orders: $\frac{3}{5} \times \frac{2}{4} + \frac{2}{5} \times \frac{3}{4} = 0.6$.

Exercises 2.4·3.1

2.4 (Higher) Find $P(A \text{ given } B)$ if $P(A \cap B) = 0.12$ and $P(B) = 0.3$.

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: Mutually exclusive events with positive probabilities must be independent.

Exercises 2.4·3.1

2.4 (Higher) Find $P(A \text{ given } B)$ if $P(A \cap B) = 0.12$ and $P(B) = 0.3$.

2.4 $P(A|B) = P(A \cap B) / P(B) = 0.12 / 0.3 = 0.4$.

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: Mutually exclusive events with positive probabilities must be independent.

3.1 False. A fair die shows 1 with probability $1/6$ and 2 with probability $1/6$. The events cannot occur together, so their joint probability is zero. Independence would require $1/36$.

Local review guidance: show the chosen method; give the checked result; explain the condition or failed shortcut. This is authored classroom guidance.