

Exercise 15C

- 1 X is binomially distributed with 4 trials and a probability of success equal to $\frac{1}{2}$ on each trial.

Without a calculator determine the probability of

- a** $P(X = 1)$ **b** $P(X < 1)$
c $P(X \leq 1)$ **d** $P(X \geq 1)$



- 2 If $X \sim B\left(6, \frac{1}{3}\right)$ find to 3 significant figures

- a** $P(X = 2)$ **b** $P(X < 2)$
c $P(X \leq 2)$ **d** $P(X \geq 2)$



- 3 If X is binomially distributed with 8 trials and a probability of success equal to $\frac{2}{7}$ at each attempt, what is the probability of

- a** exactly 5 successes **b** less than 5 successes
c more than 5 successes **d** at least one success?

Exercise 15D

- 2 The probability that a marksman scores a bull's eye when he shoots at a target is 0.55.

Find the probability that in eight attempts

- a** he **hits** the bull five times
b he **misses** the bull at least five times.

- 6 In an examination hall, it is known that 15% of desks are wobbly.

- a** What is the probability that, in a row of six desks, more than one will be wobbly?
b What is the probability that exactly one will be wobbly in a row of six desks?

Exercise 15F

- 1 a** A fair coin is tossed 40 times. Find the expected number of heads.
- b** A fair dice is rolled 40 times. Find the expected number of sixes obtained.
- c** A card is drawn from a pack of 52 cards, noted and returned. 13 of these cards are labeled as Hearts. This is repeated 40 times. Find the expected number of Hearts.

- 4** 100 families each with three children are found to have these numbers of girls:

Number of girls	0	1	2	3
Frequency	13	34	40	13

- a** Find the probability that a single baby born is a girl.
- b** Using your value from **a** calculate the number of families with three children, in a sample of 100, you would expect to have two girls.
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