Binomial Conditions

For each of the following scenarios, state, with reasons, if a binomial distribution is suitable

A fair coin is tossed as many times as possible in 1 minute and the side it lands on is recorded

☐ The Binomial Distribution is a suitable model n = _____ p = _____

☐ The Binomial Distribution is NOT a suitable model because _____

A fair dice is rolled 200 times and whether it lands on odds or evens is recorded.

☐ The Binomial Distribution is a suitable model n = _____ p = _____

☐ The Binomial Distribution is NOT a suitable model because _____

A spinner is spun 50 times. It is equally split into three sections, red, green and blue. The colour it lands on is recorded.

☐ The Binomial Distribution is a suitable model n = _____ p = _____

☐ The Binomial Distribution is NOT a suitable model because _____

A card is taken from a 52 card deck of card and the colour is noted. The card is not replaced. This is repeated 10 times.

☐ The Binomial Distribution is a suitable model n = _____ p = _____

☐ The Binomial Distribution is NOT a suitable model because _____

In a test, there are 20 questions, each with 5 possible answers. A student guesses all 20 answers.

☐ The Binomial Distribution is a suitable model n = _____ p = _____

☐ The Binomial Distribution is NOT a suitable model because _____

A record was kept of the different types of vehicle caught speeding by a speed camera. An analysis revealed that, for those vehicles caught speeding by the camera, the percentage of each type of vehicle was as shown in the table.

Type of vehicle caught speeding	Motorbike	Car	Van	Heavy goods vehicle
Percentage	15	45	28	12

A random sample of 30 vehicles caught speeding by this camera is selected.

☐ The Binomial Distribution is a suitable model n = _____ p = _____

☐ The Binomial Distribution is NOT a suitable model because _____

Customers at a supermarket can pay at a checkout either by cash, debit card or credit card. The probability that a customer pays by cash is 0.22 .

☐ The Binomial Distribution is a suitable model n = _____ p = _____

☐ The Binomial Distribution is NOT a suitable model because _____

The probability that an online order from a supermarket chain has at least one item missing when delivered is 0.06 . Online orders are 'incomplete' if they contain substitute items and/or have at least one item missing when delivered. The probability that an order is incomplete is 0.15

☐ The Binomial Distribution is a suitable model n = _____ p = _____

☐ The Binomial Distribution is NOT a suitable model because _____

Stopoff owns a chain of hotels. Guests are presented with the bills for their stays when they check out. In a random sample of 40 bills it is known that the probability a bill contains an error is 0.30

☐ The Binomial Distribution is a suitable model n = _____ p = _____

☐ The Binomial Distribution is NOT a suitable model because _____

A bin contains a very large number of paper clips of different colours. The proportion of each colour is shown in the table.

Colour	White	Yellow	Green	Blue	Red	Purple
Proportion	0.15	0.15	0.20	0.15	0.22	0.13

☐ The Binomial Distribution is a suitable model n = _____ p = _____

☐ The Binomial Distribution is NOT a suitable model because _____