Experimental Probability

(a) Mikel throws a biased coin 180 times and it lands on heads 120 times. What is the experimental probability that the coin lands on heads?

(b) Billie spins a four-sided spinner 200 times and it lands on four 45 times. What is the relative frequency that the spinner will land on a four?

(a) $\frac{120}{180} = \frac{2}{3}$

(b) $\frac{45}{200} = \frac{9}{40}$

(c) The probability that Julie pulls a red ball from a bag is 0.15. If there are 80 balls in the bag, how many of them would you expect to be red?

(d) In a class 6 out of 30 students wear glasses. If there are 450 students in the school, how many of them would you expect to wear glasses in the whole school?

(e) Samir records the colours of 50 cars passing school, and 14 are black. Samir then records the colours of 400 cars. Work out an estimate for the number of cars he would expect to be black.

(c) 12

(d) 90

(e) 112

(f) Jim has a choice of cereal, toast or fruit for breakfast. P(cereal)=0.3 and P(toast)=0.25. Over 300 days, how many times would you expect Jim to have fruit for breakfast?

(g) A spinner can land on red, blue or yellow. The probability that it lands on red is 0.1 and the probability that it lands on yellow is 0.25. If Hadiyah spins the spinner 400 times, how many times would she expect it to land on blue?

(f) P(fruit) = 0.45
135 days.

(g) P(B) = 0.65
260 times

(h) Tom throws a fair coin 30 times. Explain why Tom might not get exactly 15 heads and 15 tails.

(i) Mabel throws a coin 1000 times. It lands on heads 492 times. State with reason whether you think the coin is fair.

(h) Because experimental prob does not match exactly theoretical prob, only a small no. of trials

(i) Yes, theoretical 500 is close to 492, and large number of trials