

**A2.S.15: Binomial Probability 2: Know and apply the binomial probability formula to events involving the terms exactly, at least, and at most**

- 1 Which fraction represents the probability of obtaining *exactly* eight heads in ten tosses of a fair coin?
  - 1)  $\frac{45}{1,024}$
  - 2)  $\frac{64}{1,024}$
  - 3)  $\frac{90}{1,024}$
  - 4)  $\frac{180}{1,024}$
- 2 If a fair coin is tossed four times, the probability of getting exactly three heads is
  - 1)  $\frac{1}{16}$
  - 2)  $\frac{2}{16}$
  - 3)  $\frac{3}{16}$
  - 4)  $\frac{4}{16}$
- 3 If a fair coin is tossed five times, the probability of getting *exactly* two heads is
  - 1)  $\frac{1}{32}$
  - 2)  $\frac{1}{4}$
  - 3)  $\frac{10}{32}$
  - 4)  $\frac{2}{5}$
- 4 If a fair six-sided die is tossed five times, what is the probability of getting *exactly* three even numbers?
  - 1)  $\frac{1}{32}$
  - 2)  $\frac{3}{32}$
  - 3)  $\frac{10}{32}$
  - 4)  $\frac{3}{5}$
- 5 In a family of six children, what is the probability that there will be exactly one male child?
  - 1)  $\frac{6}{64}$
  - 2)  $\frac{7}{64}$
  - 3)  $\frac{32}{64}$
  - 4)  $\frac{58}{64}$
- 6 If six pennies are tossed, what is the probability that exactly four heads will turn up?
- 7 A fair coin is tossed three times. What is the probability of obtaining exactly three heads?
- 8 What is the probability of getting *exactly* two heads in three tosses of a fair coin?

- 9 If a fair coin is tossed four times, what is the probability of obtaining *at most* one head?
- 1)  $\frac{1}{16}$
  - 2)  $\frac{4}{16}$
  - 3)  $\frac{5}{16}$
  - 4)  $\frac{11}{16}$
- 10 If three fair coins are tossed, what is the probability of getting *at least* two heads?
- 1)  $\frac{1}{8}$
  - 2)  $\frac{3}{8}$
  - 3)  $\frac{1}{2}$
  - 4)  $\frac{2}{3}$
- 11 A certain part of the country has a 50% chance of rain each day.
- a* What is the probability of *not* having rain on any given day.
- b* Find the probability of having
- (1) exactly 5 rainy days in one week
  - (2) at most 2 days of rain in one week
  - (3) at least 6 days of rain in one week

**A2.S.15: Binomial Probability 2: Know and apply the binomial probability formula to events involving the terms exactly, at least, and at most**

**Answer Section**

- |    |  |                 |                 |
|----|--|-----------------|-----------------|
| 1  | ANS: 1   | PTS: 2          | REF: 080201b    |
| 2  | ANS: 4   | PTS: 2          | REF: 068832siii |
| 3  | ANS: 3   | PTS: 2          | REF: 018722siii |
| 4  | ANS: 3   | PTS: 2          | REF: 060230siii |
| 5  | ANS: 1   | PTS: 2          | REF: 068629siii |
| 6  | ANS:<br>$\frac{15}{64}$  |                 |                 |
|    | PTS: 2   | REF: 088409siii |                 |
| 7  | ANS:<br>$\frac{1}{8}$  |                 |                 |
|    | PTS: 2   | REF: 019005siii |                 |
| 8  | ANS:<br>$\frac{3}{8}$  |                 |                 |
|    | PTS: 2   | REF: 010016siii |                 |
| 9  | ANS: 3   | PTS: 2          | REF: 018427siii |
| 10 | ANS: 3   | PTS: 2          | REF: 089735siii |
| 11 | ANS:<br>$\frac{1}{2}, \frac{21}{128}, \frac{29}{128}, \frac{8}{128}$ |                 |                 |
|    | PTS: 10  | REF: 018642siii |                 |