

Let $S = \{a, b, c, d, e, f\}$ be a sample space for an experiment. Let $E = \{a, b, c, d\}$, $F = \{c, d, e\}$, and $G = \{a, c, f\}$. If the events E and G occur, but F does not occur, then which of the following events also occurs?

- (a) $\{a, c, f\}$
- (b) $\{c, d, f\}$
- (c) $\{b, c, d, f\}$
- (d) $\{c, d, e, f\}$
- (e) $\{c\}$
- (f) $\{f\}$
- (g) $\{d\}$
- (h) $\{c, d\}$
- (i) $\{c, e, f\}$
- (j) None of these

Suppose a sample space consists of all positive integers, and for each positive integer n , the event $\{n\}$ has probability 2^{-n} . How many different events in the sample space have probability equal to $1/2$?

- (a) 2
- (b) 1
- (c) 0
- (d) 3
- (e) 4
- (f) 5
- (g) 6
- (h) 8
- (i) 16
- (j) An infinite number of events
- (k) 32
- (l) 64
- (m) None of these

Suppose a fair coin is flipped 3 times. Which of the following is the complement of the event that either an even number of Heads occur or exactly two Tails occur ?

- (a) $\{HHH\}$
- (b) $\{HHH, HTH\}$
- (c) $\{HHH, HTH, HHT, THH\}$
- (d) $\{HTH, HHT, THH\}$
- (e) $\{HHH, TTH, THT, HTT\}$
- (f) $\{TTH, THT, HTT\}$
- (g) $\{HHH, TTT\}$
- (h) $\{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\}$
- (i) $\{HHT, HTH, HTT, THH, THT, TTH, TTT\}$
- (j) $\{HHT, HTH, HTT, THH, THT, TTH\}$
- (k) $\{TTT\}$
- (l) $\{TTT, HHT, HTH, THH\}$
- (m) $\{TTT, TTH, THT, HTT\}$
- (n) \emptyset
- (o) None of these