

Book For
Railway Recruitment Board



Probability



Visit our websites:

www.Couponlal.com

www.Myexamportal.com

www.Examlal.com

www.Joblal.com

www.joinexam.in

www.examyou.com

Q. 1 A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?

[A] $\frac{10}{21}$

[B] $\frac{11}{21}$

[C] $\frac{2}{7}$

[D] $\frac{5}{7}$

www.joblall.com

Answer Option [A]

Explanation:

Total number of balls = $(2 + 3 + 2) = 7$.

Let S be the sample space.

Then, $n(S)$ = Number of ways of drawing 2 balls out of 7

$$= {}^7C_2$$

$$= \frac{(7 \times 6)}{(2 \times 1)}$$

$$= 21.$$

Let E = Event of drawing 2 balls, none of which is blue.

$\therefore n(E)$ = Number of ways of drawing 2 balls out of $(2 + 3)$ balls.

$$= {}^5C_2$$

$$= \frac{(5 \times 4)}{(2 \times 1)}$$

$$= 10.$$

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{10}{21}.$$

www.rrb2018.com | www.couponlall.com | www.examlall.com | www.joblall.com | www.examy.com

Q. 2 What is the probability of getting a sum 9 from two throws of a dice?

[A] $\frac{1}{6}$

[B] $\frac{1}{8}$

[C] $\frac{1}{9}$

[D] $\frac{1}{12}$

www.joblall.com

Answer Option [C]

Explanation:

In two throws of a die, $n(S) = (6 \times 6) = 36$.

Let E = event of getting a sum = {(3, 6), (4, 5), (5, 4), (6, 3)}.

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{4}{36} = \frac{1}{9} .$$

Q. 3 **A bag contains 4 white, 5 red and 6 blue balls. Three balls are drawn at random from the bag. The probability that all of them are red, is:**

[A] $\frac{1}{22}$

[B] $\frac{3}{22}$

[C] $\frac{2}{91}$

[D] $\frac{2}{77}$

www.joblal.com

Answer Option [C]

Explanation:

Let S be the sample space.

Then, $n(S)$ = number of ways of drawing 3 balls out of 15

$$= {}^{15}C_3$$

$$= \frac{(15 \times 14 \times 13)}{(3 \times 2 \times 1)}$$

$$= 455.$$

Let E = event of getting all the 3 red balls.

$$\therefore n(E) = {}^5C_3 = {}^5C_2 = \frac{(5 \times 4)}{(2 \times 1)} = 10.$$

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{10}{455} = \frac{2}{91} .$$

Q. 4 **A card is drawn from a pack of 52 cards. The probability of getting a queen of club or a king of heart is:**

[A] $\frac{1}{13}$

[B] $\frac{2}{13}$

[C] $\frac{1}{26}$

www.joblal.com

[D] $\frac{1}{52}$

Answer Option [C]

Explanation:

Here, $n(S) = 52$.

Let E = event of getting a queen of club or a king of heart.

Then, $n(E) = 2$.

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{2}{52} = \frac{1}{26} .$$

www.rrb2018.com | www.couponlal.com | www.examlal.com | www.joblal.com | www.examy.com

Q. 5 In a box, there are 8 red, 7 blue and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green?

[A] $\frac{1}{3}$

[B] $\frac{3}{4}$

[C] $\frac{7}{19}$

[D] $\frac{8}{21}$

[E] $\frac{9}{21}$

www.joblal.com

Answer Option [A]

Explanation:

Total number of balls = $(8 + 7 + 6) = 21$.

Let E = event that the ball drawn is neither red nor green

= event that the ball drawn is blue.

$\therefore n(E) = 7$.

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{7}{21} = \frac{1}{3} .$$

www.rrb2018.com | www.couponlal.com | www.examlal.com | www.joblal.com | www.examy.com

Q. 6 Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?

[A] $\frac{1}{2}$

[B] $\frac{2}{5}$

[C] $\frac{8}{15}$

www.joblal.com

$$[D] \frac{9}{20}$$

Answer Option [D]

Explanation:

Here, $S = \{1, 2, 3, 4, \dots, 19, 20\}$.

Let $E =$ event of getting a multiple of 3 or 5 = $\{3, 6, 9, 12, 15, 18, 5, 10, 20\}$.

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{9}{20} .$$

www.rrb2018.com | www.couponlal.com | www.examlal.com | www.joblal.com | www.examy.com

Q. 7 **Two dice are thrown simultaneously. What is the probability of getting two numbers whose product is even?**

[A] $\frac{1}{2}$

[B] $\frac{3}{4}$

[C] $\frac{3}{8}$

[D] $\frac{5}{16}$

www.joblal.com

Answer Option [B]

Explanation:

In a simultaneous throw of two dice, we have $n(S) = (6 \times 6) = 36$.

Then, $E = \{(1, 2), (1, 4), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 2), (3, 4), (3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 2), (5, 4), (5, 6), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)\}$

$$\therefore n(E) = 27.$$

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{27}{36} = \frac{3}{4} .$$

www.rrb2018.com | www.couponlal.com | www.examlal.com | www.joblal.com | www.examy.com

Q. 8 **From a pack of 52 cards, two cards are drawn together at random. What is the probability of both the cards being kings?**

[A] $\frac{1}{15}$

[B] $\frac{25}{57}$

[C] $\frac{35}{256}$

[D] $\frac{1}{221}$

www.joblal.com

Answer Option [D]

Explanation:

Let S be the sample space.

$$\text{Then, } n(S) = {}^{52}C_2 = \frac{(52 \times 51)}{(2 \times 1)} = 1326.$$

Let E = event of getting 2 kings out of 4.

$$\therefore n(E) = {}^4C_2 = \frac{(4 \times 3)}{(2 \times 1)} = 6.$$

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{6}{1326} = \frac{1}{221}.$$

www.rrb2018.com | www.couponlal.com | www.examlal.com | www.joblal.com | www.examy.com

Q. 9 Two dice are tossed. The probability that the total score is a prime number is:

[A] $\frac{1}{6}$

[B] $\frac{5}{12}$

[C] $\frac{1}{2}$

[D] $\frac{7}{9}$

www.joblal.com

Answer Option [B]

Explanation:

Clearly, $n(S) = (6 \times 6) = 36$.

Let E = Event that the sum is a prime number.

$$\text{Then } E = \{ (1, 1), (1, 2), (1, 4), (1, 6), (2, 1), (2, 3), (2, 5), (3, 2), (3, 4), (4, 1), (4, 3), (5, 2), (5, 6), (6, 1), (6, 5) \}$$

$$\therefore n(E) = 15.$$

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{15}{36} = \frac{5}{12}.$$

www.rrb2018.com | www.couponlal.com | www.examlal.com | www.joblal.com | www.examy.com

Q. 10 Two cards are drawn together from a pack of 52 cards. The probability that one is a spade and one is a heart, is:

[A] $\frac{3}{20}$

[B] $\frac{29}{34}$

[C] $\frac{47}{100}$

www.joblal.com

$$[D] \frac{13}{102}$$

Answer Option [D]

Explanation:

Let S be the sample space.

$$\text{Then, } n(S) = {}^{52}C_2 = \frac{(52 \times 51)}{(2 \times 1)} = 1326.$$

Let E = event of getting 1 spade and 1 heart.

$\therefore n(E)$ = number of ways of choosing 1 spade out of 13 and 1 heart out of 13

$$= ({}^{13}C_1 \times {}^{13}C_1)$$

$$= (13 \times 13)$$

$$= 169.$$

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{169}{1326} = \frac{13}{102} .$$

www.rrb2018.com | www.couponlal.com | www.examlal.com | www.joblal.com | www.examy.com

Q. 11 In a class, there are 15 boys and 10 girls. Three students are selected at random. The probability that 1 girl and 2 boys are selected, is:

[A] $\frac{21}{46}$

[B] $\frac{25}{117}$

[C] $\frac{1}{50}$

[D] $\frac{3}{25}$

www.joblal.com

Answer Option [A]

Explanation:

Let S be the sample space and E be the event of selecting 1 girl and 2 boys.

Then, $n(S)$ = Number ways of selecting 3 students out of 25

$$= {}^{25}C_3$$

$$= \frac{(25 \times 24 \times 23)}{(3 \times 2 \times 1)}$$

$$= 2300.$$

$$n(E) = ({}^{10}C_1 \times {}^{15}C_2)$$

$$= \left[10 \times \frac{(15 \times 14)}{(2 \times 1)} \right]$$

$$= 1050.$$

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{1050}{2300} = \frac{21}{46} .$$

Q. 12 Three unbiased coins are tossed. What is the probability of getting at most two heads?

[A] $\frac{3}{4}$

[B] $\frac{1}{4}$

[C] $\frac{3}{8}$

[D] $\frac{7}{8}$

www.joblal.com

Answer Option [D]

Explanation:

Here $S = \{TTT, TTH, THT, HTT, THH, HTH, HHT, HHH\}$

Let $E =$ event of getting at most two heads.

Then $E = \{TTT, TTH, THT, HTT, THH, HTH, HHT\}$.

$$\therefore P(E) = \frac{n(E)}{n(S)} = \frac{7}{8} .$$

Q. 13 A bag contains 6 black and 8 white balls. One ball is drawn at random. What is the probability that the ball drawn is white?

[A] $\frac{3}{4}$

[B] $\frac{4}{7}$

[C] $\frac{1}{8}$

[D] $\frac{3}{7}$

www.joblal.com

Answer Option [B]

Explanation:

Let number of balls = $(6 + 8) = 14$.

Number of white balls = 8.

$$P(\text{drawing a white ball}) = \frac{8}{14} = \frac{4}{7} .$$

Q. 14 One card is drawn at random from a pack of 52 cards. What is the probability that the card drawn is a face card (Jack, Queen and King only)?

[A] $\frac{1}{13}$

[B] $\frac{3}{13}$

[C] $\frac{1}{4}$

[D] $\frac{9}{52}$

www.joblal.com

Answer Option [B]

Explanation:

Clearly, there are 52 cards, out of which there are 12 face cards.

$$\therefore P(\text{getting a face card}) = \frac{12}{52} = \frac{3}{13} .$$

www.rrb2018.com | www.couponlal.com | www.examlal.com | www.joblal.com | www.examy.com

Q. 15 In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. What is the probability of getting a prize?

[A] $\frac{1}{10}$

[B] $\frac{2}{5}$

[C] $\frac{2}{7}$

[D] $\frac{5}{7}$

www.joblal.com

Answer Option [C]

Explanation:

$$P(\text{getting a prize}) = \frac{10}{(10 + 25)} = \frac{10}{35} = \frac{2}{7} .$$

www.rrb2018.com | www.couponlal.com | www.examlal.com | www.joblal.com | www.examy.com