Solving Problems Involving Probability of Simple Events

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Practice

1. A 52-card pack is well shuffled and then one card is drawn from the top of the pack. Determine that it is a red number card.

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n(red number card) = 18
n(S) = 52

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n(red number card) = 18

n(S) = 52

$$P(\text{red number card}) = \frac{n(\text{red number card})}{n(S)}$$

Practice

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n(red number card) = 18

n(S) = 52

$P(\text{red number card}) = \dfrac{n(\text{red number card})}{n(S)}$

$P(\text{red number card}) = \dfrac{18}{52}$

Practice

1. A 52-card pack is well shuffled and then one card is drawn from the top of the pack. Determine that it is a red number card.

n(red number card) = 18
n(S) = 52

$P(\text{red number card}) = \dfrac{n(\text{red number card})}{n(S)}$

$P(\text{red number card}) = \dfrac{18}{52}$

$P(\text{red number card}) = \dfrac{9}{26}$

Practice

2. A 52-card pack is well shuffled and then one card is drawn from the top of the pack. Determine that it is a black ace.

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n(black ace) = 2

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n(black ace) = 2
n(S) = 52

Practice

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n(black ace) = 2

n(S) = 52

$$P(\text{black ace}) = \frac{n(\text{black ace})}{n(S)}$$

Practice

2. A 52-card pack is well shuffled and then one card is drawn from the top of the pack. Determine that it is a black ace.

n(black ace) = 2

n(S) = 52

$P(\text{black ace}) = \dfrac{n(\text{black ace})}{n(S)}$

$P(\text{black ace}) = \dfrac{2}{52}$

Practice

2. A 52-card pack is well shuffled and then one card is drawn from the top of the pack. Determine that it is a black ace.

n(black ace) = 2
n(S) = 52

$$P(\text{black ace}) = \frac{\text{n(black ace)}}{\text{n(S)}}$$

$$P(\text{black ace}) = \frac{2}{52}$$

$$P(\text{black ace}) = \frac{1}{26}$$

Practice

3. A pair of coin is tossed. What is the probability of getting two tails?

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n(two tails) = 1

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n(two tails) = 1
n(S) = 4

Practice

3. A pair of coin is tossed. What is the probability of getting two tails?

n(two tails) = 1
n(S) = 4
$P(\text{two tails}) = \dfrac{n(\text{two tails})}{n(S)}$

Practice

3. A pair of coin is tossed. What is the probability of getting two tails?

n(two tails) = 1

n(S) = 4

$$P(\text{two tails}) = \frac{n(\text{two tails})}{n(S)}$$

$$P(\text{two tails}) = \frac{1}{4}$$

Practice

4. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting two heads?

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Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting two heads?

$P(\text{two heads}) = \dfrac{f}{\sum f}$

Practice

4. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting two heads?

$P(\text{two heads}) = \dfrac{f}{\sum f} = \dfrac{164}{400}$

Practice

4. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting two heads?

$$P(\text{two heads}) = \frac{f}{\sum f} = \frac{164}{400}$$

$$P(\text{two heads}) = \frac{41}{100}$$

Practice

5. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting two tails?

Practice

5. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting two tails?

$P(\text{two tails}) = \dfrac{f}{\sum f}$

Practice

5. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting two tails?

$$P(\text{two tails}) = \frac{f}{\sum f} = \frac{112}{400}$$

Practice

5. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting two tails?

$P(\text{two tails}) = \dfrac{f}{\sum f} = \dfrac{112}{400}$

$P(\text{two tails}) = \dfrac{7}{25}$

Practice

6. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting a head and a tail?

Practice

6. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting a head and a tail?

$P(\text{a head and a tail}) = \dfrac{f}{\sum f}$

Practice

6. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting a head and a tail?

$$P(\text{a head and a tail}) = \frac{f}{\sum f} = \frac{124}{400}$$

Practice

6. A pair of coin is tossed 400 times and the results are:

Result	Two heads	Two tails	A head and a tail
Frequency	164	112	124

What is the probability of getting a head and a tail?

$P(\text{a head and a tail}) = \dfrac{f}{\sum f} = \dfrac{124}{400}$

$P(\text{a head and a tail}) = \dfrac{31}{100}$

Practice

7. A coin was tossed 100 times. It fell on tails 48 times. What is the probability that a tail shows up?

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$$P(tail) = \frac{f}{\sum f}$$

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$$P(tail) = \frac{f}{\sum f}$$

$$P(tail) = \frac{48}{100}$$

Practice

7. A coin was tossed 100 times. It fell on tails 48 times.
What is the probability that a tail shows up?

$$P(tail) = \frac{f}{\sum f}$$

$$P(tail) = \frac{48}{100}$$

$$P(tail) = \frac{12}{25}$$

8. A coin was tossed 100 times. It fell on tails 48 times. What is the probability that a head shows up?

Practice

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$$P(head) = \frac{f}{\sum f}$$

Practice

8. A coin was tossed 100 times. It fell on tails 48 times. What is the probability that a head shows up?

$$P(head) = \frac{f}{\sum f}$$

$$P(head) = \frac{52}{100}$$

Practice

8. A coin was tossed 100 times. It fell on tails 48 times. What is the probability that a head shows up?

$$P(head) = \frac{f}{\sum f}$$

$$P(head) = \frac{52}{100}$$

$$P(head) = \frac{13}{25}$$

Practice

9. Earl Darenz is asked to choose a day from a week. What is the probability of choosing a day which starts with S?

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n(starts with S) = 2

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n(starts with S) = 2
n(S) = 7

Practice

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n(starts with S) = 2

n(S) = 7

$$P(\text{starts with S}) = \frac{n(\text{starts with S})}{n(S)}$$

Practice

9. Earl Darenz is asked to choose a day from a week. What is the probability of choosing a day which starts with S?

n(starts with S) = 2

n(S) = 7

$P(\text{starts with S}) = \dfrac{\text{n(starts with S)}}{\text{n(S)}}$

$P(\text{starts with S}) = \dfrac{2}{7}$

Practice

10. Choosing a month from a year, what is the probability of selecting a month with 31 days?

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n(31 days) = 7
n(S) = 12

Practice

10. Choosing a month from a year, what is the probability of selecting a month with 31 days?

n(31 days) = 7
n(S) = 12
$$P(31 \text{ days}) = \frac{n(31 \text{ days})}{n(S)}$$

Practice

10. Choosing a month from a year, what is the probability of selecting a month with 31 days?

n(31 days) = 7
n(S) = 12
$$P(31 \text{ days}) = \frac{n(31 \text{ days})}{n(S)}$$

$$P(31 \text{ days}) = \frac{7}{12}$$

Practice

11. If a letter is chosen at random from the word PERSEVERANCE, what is the probability that the letter chosen is E?

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n(E) = 4
n(S) = 12

Practice

11. If a letter is chosen at random from the word PERSEVERANCE, what is the probability that the letter chosen is E?

$n(E) = 4$

$n(S) = 12$

$P(E) = \dfrac{n(E)}{n(S)}$

Practice

11. If a letter is chosen at random from the word PERSEVERANCE, what is the probability that the letter chosen is E?

n(E) = 4

n(S) = 12

$$P(E) = \frac{n(E)}{n(S)}$$

$$P(E) = \frac{4}{12}$$

Practice

11. If a letter is chosen at random from the word PERSEVERANCE, what is the probability that the letter chosen is E?

n(E) = 4
n(S) = 12

$$P(E) = \frac{n(E)}{n(S)}$$

$$P(E) = \frac{4}{12} = \frac{1}{3}$$

Practice

12. If one letter is chosen at random from the word TRUSTWORTHY, what is the probability that the letter chosen is a consonant?

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n(consonant) = 9

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n(consonant) = 9
n(S) = 11

Practice

12. If one letter is chosen at random from the word TRUSTWORTHY, what is the probability that the letter chosen is a consonant?

n(consonant) = 9

n(S) = 11

$$P(\text{consonant}) = \frac{\text{n(consonant)}}{\text{n(S)}}$$

Practice

12. If one letter is chosen at random from the word TRUSTWORTHY, what is the probability that the letter chosen is a consonant?

n(consonant) = 9

n(S) = 11

$$P(\text{consonant}) = \frac{\text{n(consonant)}}{\text{n(S)}}$$

$$P(\text{consonant}) = \frac{9}{11}$$

Practice

13. The sides of a cube are numbered 11 to 16. If Jan Renz rolled the cube once, what is the probability of rolling a composite number?

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n(composite) = 4

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n(composite) = 4
n(S) = 6

Practice

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n(composite) = 4

n(S) = 6

$$P(\text{composite}) = \frac{\text{n(composite)}}{\text{n(S)}}$$

Practice

13. The sides of a cube are numbered 11 to 16. If Jan Renz rolled the cube once, what is the probability of rolling a composite number?

n(composite) = 4

n(S) = 6

$$P(\text{composite}) = \frac{n(\text{composite})}{n(S)}$$

$$P(\text{composite}) = \frac{4}{6}$$

Practice

13. The sides of a cube are numbered 11 to 16. If Jan Renz rolled the cube once, what is the probability of rolling a composite number?

n(composite) = 4

n(S) = 6

$P(\text{composite}) = \dfrac{n(\text{composite})}{n(S)}$

$P(\text{composite}) = \dfrac{4}{6} = \dfrac{2}{3}$

Practice

14. A box contains 7 red balls, 5 orange balls, 4 yellow balls, 6 green balls, and 3 blue balls. What is the probability of drawing out an orange ball?

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n(orange) = 5

Practice

14. A box contains 7 red balls, 5 orange balls, 4 yellow balls, 6 green balls, and 3 blue balls. What is the probability of drawing out an orange ball?

n(orange) = 5
n(S) = 25

Practice

14. A box contains 7 red balls, 5 orange balls, 4 yellow balls, 6 green balls, and 3 blue balls. What is the probability of drawing out an orange ball?

n(orange) = 5

n(S) = 25

$$P(\text{orange}) = \frac{n(\text{orange})}{n(S)}$$

Practice

14. A box contains 7 red balls, 5 orange balls, 4 yellow balls, 6 green balls, and 3 blue balls. What is the probability of drawing out an orange ball?

n(orange) = 5
n(S) = 25

$$P(\text{orange}) = \frac{n(\text{orange})}{n(S)}$$

$$P(\text{orange}) = \frac{5}{25}$$

Practice

14. A box contains 7 red balls, 5 orange balls, 4 yellow balls, 6 green balls, and 3 blue balls. What is the probability of drawing out an orange ball?

n(orange) = 5

n(S) = 25

$$P(\text{orange}) = \frac{n(\text{orange})}{n(S)}$$

$$P(\text{orange}) = \frac{5}{25} = \frac{1}{5}$$

Practice

15. A die is rolled. What is the probability of getting a number greater than 4?

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$n(n > 4) = 2$

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$n(n > 4) = 2$
$n(S) = 6$

Practice

15. A die is rolled. What is the probability of getting a number greater than 4?

$n(n > 4) = 2$
$n(S) = 6$
$P(n > 4) = \dfrac{n(n > 4)}{n(S)}$

Practice

15. A die is rolled. What is the probability of getting a number greater than 4?

$n(n > 4) = 2$

$n(S) = 6$

$P(n > 4) = \dfrac{n(n > 4)}{n(S)}$

$P(n > 4) = \dfrac{2}{6}$

Practice

15. A die is rolled. What is the probability of getting a number greater than 4?

$n(n > 4) = 2$

$n(S) = 6$

$P(n > 4) = \dfrac{n(n > 4)}{n(S)}$

$P(n > 4) = \dfrac{2}{6} = \dfrac{1}{3}$

Practice

16. A die is rolled. What is the probability of getting a number less than 4?

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$n(n < 4) = 3$

Practice

16. A die is rolled. What is the probability of getting a number less than 4?

$n(n < 4) = 3$
$n(S) = 6$

Practice

16. A die is rolled. What is the probability of getting a number less than 4?

$n(n < 4) = 3$
$n(S) = 6$
$P(n < 4) = \dfrac{n(n < 4)}{n(S)}$

Practice

16. A die is rolled. What is the probability of getting a number less than 4?

$n(n < 4) = 3$

$n(S) = 6$

$P(n < 4) = \dfrac{n(n < 4)}{n(S)}$

$P(n < 4) = \dfrac{3}{6}$

Practice

16. A die is rolled. What is the probability of getting a number less than 4?

$n(n < 4) = 3$
$n(S) = 6$
$P(n < 4) = \dfrac{n(n < 4)}{n(S)}$

$P(n < 4) = \dfrac{3}{6} = \dfrac{1}{2}$

Practice

17. A spinner is divided equally and numbered as follows: 1, 1, 2, 3, 3, 4, 1, 1, 2, 4, 1, 2, 3, 4, 1, 2. What is the probability that the pointer will stop at an even prime?

Practice

17. A spinner is divided equally and numbered as follows: 1, 1, 2, 3, 3, 4, 1, 1, 2, 4, 1, 2, 3, 4, 1, 2. What is the probability that the pointer will stop at an even prime?

n(even prime) = 4

Practice

17. A spinner is divided equally and numbered as follows: 1, 1, 2, 3, 3, 4, 1, 1, 2, 4, 1, 2, 3, 4, 1, 2. What is the probability that the pointer will stop at an even prime?

n(even prime) = 4
n(S) = 16

Practice

17. A spinner is divided equally and numbered as follows: 1, 1, 2, 3, 3, 4, 1, 1, 2, 4, 1, 2, 3, 4, 1, 2. What is the probability that the pointer will stop at an even prime?

n(even prime) = 4

n(S) = 16

$$P(\text{even prime}) = \frac{n(\text{even prime})}{n(S)}$$

Practice

17. A spinner is divided equally and numbered as follows: 1, 1, 2, 3, 3, 4, 1, 1, 2, 4, 1, 2, 3, 4, 1, 2. What is the probability that the pointer will stop at an even prime?

n(even prime) = 4

n(S) = 16

$$P(\text{even prime}) = \frac{n(\text{even prime})}{n(S)}$$

$$P(\text{even prime}) = \frac{4}{16}$$

Practice

17. A spinner is divided equally and numbered as follows: 1, 1, 2, 3, 3, 4, 1, 1, 2, 4, 1, 2, 3, 4, 1, 2. What is the probability that the pointer will stop at an even prime?

n(even prime) = 4

n(S) = 16

$$P(\text{even prime}) = \frac{n(\text{even prime})}{n(S)}$$

$$P(\text{even prime}) = \frac{4}{16} = \frac{1}{4}$$

Practice

18. What is the probability of getting an 8 from a deck of 52 cards?

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$n(8) = 4$

Practice

18. What is the probability of getting an 8 from a deck of 52 cards?

n(8) = 4
n(S) = 52

Practice

18. What is the probability of getting an 8 from a deck of 52 cards?

$n(8) = 4$
$n(S) = 52$
$P(8) = \dfrac{n(8)}{n(S)}$

Practice

18. What is the probability of getting an 8 from a deck of 52 cards?

$n(8) = 4$

$n(S) = 52$

$P(8) = \dfrac{n(8)}{n(S)}$

$P(8) = \dfrac{4}{52}$

Practice

18. What is the probability of getting an 8 from a deck of 52 cards?

$n(8) = 4$
$n(S) = 52$
$$P(8) = \frac{n(8)}{n(S)}$$
$$P(8) = \frac{4}{52} = \frac{1}{13}$$

Practice

19. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at most 4?

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19. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at most 4?

$n(n \leq 4) = 6$

Practice

19. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at most 4?

$n(n \leq 4) = 6$
$n(S) = 36$

Practice

19. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at most 4?

$n(n \leq 4) = 6$

$n(S) = 36$

$P(n \leq 4) = \dfrac{n(n \leq 4)}{n(S)}$

Practice

19. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at most 4?

$n(n \leq 4) = 6$

$n(S) = 36$

$P(n \leq 4) = \dfrac{n(n \leq 4)}{n(S)}$

$P(n \leq 4) = \dfrac{6}{36}$

Practice

19. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at most 4?

$n(n \leq 4) = 6$
$n(S) = 36$
$P(n \leq 4) = \dfrac{n(n \leq 4)}{n(S)}$

$P(n \leq 4) = \dfrac{6}{36} = \dfrac{1}{6}$

Practice

20. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at least 10?

Practice

20. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at least 10?

$n(n \geq 10) = 6$

Practice

20. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at least 10?

$n(n \geq 10) = 6$
$n(S) = 36$

Practice

20. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at least 10?

$n(n \geq 10) = 6$

$n(S) = 36$

$P(n \geq 10) = \dfrac{n(n \geq 10)}{n(S)}$

Practice

20. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at least 10?

$n(n \geq 10) = 6$

$n(S) = 36$

$P(n \geq 10) = \dfrac{n(n \geq 10)}{n(S)}$

$P(n \geq 10) = \dfrac{6}{36}$

Practice

20. A pair of dice is rolled. What is the probability of getting two numbers whose sum is at least 10?

$n(n \geq 10) = 6$

$n(S) = 36$

$P(n \geq 10) = \dfrac{n(n \geq 10)}{n(S)}$

$P(n \geq 10) = \dfrac{6}{36} = \dfrac{1}{6}$

Thank you for attending the virtual class.