MATHS

BOOKS - ICSE

PROBABILITY

Solved Examples

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1. A coin is tossed 500 times. We obtain a head 260 times. On tossing the coin at random, find the probability of getting (i) a head, (ii) a tail

2. A die is rolled 50 times and the number 6 is obtained 8 times. Now, if the die is rolled at random, find the probability of getting the number 6.

3. here are 10 cards in a bag bearing numbers from 1 to 10. A card is drawn from the bag 60

times. Each time, the number obtained is noted and the card drawn is replaced. It was found that the card bearing number 7 was drawn 4 times. Now, if a card is drawn at random, find the probability of getting the card bearing number 7.

4. A die is rolled 100 times and the outcomes are noted and tabulated as shown :

Outcome	1	2	3	4	5	6
Frequency	9	15	19	21	24	12

When a die is rolled at random, find the probability of getting the number:

(i) 2, (ii) 4, (iii) 6

5. In a school, 300 students were surveyed. The survey showed that 186 students liked watching cricket match while the rest disliked it. Out of these students, if one student is chosen at random, what is the probability that the chosen student :

(i) likes watching cricket match?

(ii) dislikes watching cricket match?

Exercise 25

1. When a coin was tossed 200 times, we obtained Head : 118 times and Tail: 82 times. When the coin is tossed at random, what is the probability of getting

(i) ahead?

(ii) a tail?

2. A die is rolled 150 times and the outcomes are noted which are tabulated as shown below :

Outcome	1	2	3	4	5	6
Frequency	29	17	24	19	33	28

When a die is rolled at random, find the probability of getting a :

(i) 1, (ii) 4, (iii) 5

3. Five cards numbered to 5 are placed in a bag. A card is drawn from the bag 30 times. Each time, the number on the drawn card is noted and the card drawn is replaced. The outcomes are tabulated as shown below :

Outcome	1	2	3	4	5
Frequency	4	10	7	5	4

If a card is now drawn at random, find the probability that the card drawn bears the number:

$(i)2, (ii)3, (iii)5$

A. (i) $\dfrac{2}{3}$, (ii) $\dfrac{7}{30}$, (iii) $\dfrac{2}{15}$

B. (i) $\dfrac{1}{3}$, (ii) $\dfrac{7}{20}$, (iii) $\dfrac{2}{15}$

C. (i) $\dfrac{1}{3}$, (ii) $\dfrac{9}{30}$, (iii) $\dfrac{2}{15}$

D. (i) $\dfrac{1}{3}$, (ii) $\dfrac{7}{30}$, (iii) $\dfrac{2}{15}$

Answer: D

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4. Two coins are tossed simultaneously 100 times. We obtained : Two Heads : 23 times, One Head: 56 times, Zero Head : 21 times.

When two coins are tossed at random, what is the probability of getting:

(i) Two Heads?

(ii) One Head?

(iii) Zero Head?

5. In a survery of 200 employees of a company, it was found that 89 liked the lunch packs provided by the Company while the rest did not. Out of these employees, if one employee

is chosen at random, what is the probability that the chosen employee:

(i) likes the lunch pack? (ii) dislikes the lunch pack?

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Example

1. A bag contains 3 Maths books. 5 English books, and 4 Science books. One book is taken out from the bag. Find the probability that the

book drawn is a

Maths book

2. A bag contains 3 Maths books. 5 English books, and 4 Science books. One book is taken out from the bag. Find the probability that the book drawn is a

English book.

3. A bag contains 3 Maths books. 5 English books, and 4 Science books. One book is taken out from the bag. Find the probability that the book drawn is a

Science book.

4. A bag has 7 white, 12 green and 9 blue marbles. One marble is drawn at random. Find the probability that the marble drawn from the bag is not white.

5. A box has three paris of socks. One pair is white and the other two are of blue colour. One white sock is taken out. Later another sock is drawn from the bag without looking at the colour. What is the probability that it will be blue in colour?

6. A card is drawn from a pack of 52. List the outcomes of the following events:

Getting a king.

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7. A card is drawn from a pack of 52. List the outcomes of the following events:

Getting a red ace.

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1. Describe the following events as 'certain', 'impossible' 'likely' or 'unlikely'.

This year January will have 32 days.

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2. Describe the following events as 'certain', 'impossible' 'likely' or 'unlikely'.

Today I will reach school on time.

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3. Describe the following events as 'certain', 'impossible' 'likely' or 'unlikely'.

When I toss a coin. I will get either a head or a tail.

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4. Describe the following events as 'certain', 'impossible' 'likely' or 'unlikely'.

You are in grade 7 and you will have 'Surprise Test' in 4 subjects today.

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5. List the outcomes when:

a coin is tossed.

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6. List the outcomes when:

a die is rolled.

7. A dice is rolled. List the outcomes of the event A if:

A is the event that a number less than or equal to 3 appears.

8. A dice is rolled. List the outcomes of the event A if:

A is the event that a number greater than or equal to 5 appears.

9. A die is rolled. List the outcomes of the event A if:

A is the event that a number not more than 4 appears.

10. A die is rolled. List the outcomes of the event A if:

A is the event that a number not less than 3 appears.

11. A die is rolled. Find the probability of getting:

a 6.

12. A die is rolled. Find the probability of getting:

a multiple of 3.

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13. A die is rolled. Find the probability of getting:

a multiple of 4.

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14. A dice is rolled. Find the probability of getting:

a number which is not a prime number.

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15. A die is rolled. Find the probability of getting:

a composite number.

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16. A die is rolled. Find the probability that:

a number less than 4 shows.

17. A die is rolled. Find the probability that:

a number more than 4 shows.

18. A die is rolled. Find the probability that:

a number greater than or equal to 2 shows.

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19. A die is rolled. Find the probability that:

a number less than equal to 2 shows.

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20. A die is rolled. Find the probability that:

a number divisible by 2 shows.

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21. A card is drawn from a pack of 52. Find the probability that:

it is a card of heart.

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22. A card is drawn from a pack of 52. Find the probability that:

it is a face card (jack, queen, and king).

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23. A card is drawn from a pack of 52. Find the probability that:

it is not a face card.

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24. A card is drawn from a pack of 52. Find the probability that:

it is a 10 and red in colour.

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25. A card is drawn from a pack of 52. Find the probability that:

it is an 8 and black in colour.

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26. A bag contains 5 red and 8 green marbles. One marble is drawn from the bag at random. Find the probability that the marble drawn is red.

27. A bag has 10 green, 5 white, and 4 green balls. One ball is drawn at random. What is the probability that it is white?

28. Your team along with other two teams are participating in a debrate competition. The team that will go first is to be decided by a drawn of lots. What is the probability that your team will go first?

29. A box has 50 identical cards numbered 1 to 50. One card is drawn at random. What is probability that the card drawn has a number which is a multiple of 3?

30. A box has five pairs of socks. Two pairs are white and the other three are black. One black sock is taken out. Later , another sock is drawn from the bag. What is the probability that it will be a black sock?

31. A letter is picked at random from the English alphabet. Find the probability that is a vowel.

32. A letter is picked at random from the letters of the work UNCOPYRIGHTABLE. Find the probability that it is a vowel.

33. A bag has 6 green, 5 red, 7 blue and 3 pink pencils. One pencil is drawn at random. Find the probability that the pencil is neither green nor pink.

34. A group of students are asked which game they play. The findings are as follows : 8 play cricket, 9 play football, 7 play table tennis, and 5 play tennis. One student is selected at

random. What is the probability that the student plays either table tennis or tennis?

Revision Exercise

1. Use one of the following to describe each one of the statements: Certain, very likely, likely, very unlikely, impossible

It will snow tomorrow in Delhi.

2. Use one of the following to describe each one of the statements: Certain, very likely, likely, very unlikely, impossible

The sun will rise tomorrow.

3. Use one of the following to describe each one of the statements: Certain, very likely, likely, very unlikely, impossible

A die is rolled and a 5 shows.

4. Use one of the following to describe each one of the statements: Certain, very likely, likely, very unlikely, impossible

Your car will have a flat tyre today.

5. Use one of the following to describe each one of the statements: Certain, very likely,

likely, very unlikely, impossible

A worksheet of 10 question. A given to you from the worksheet is an easy question.

6. A die is rolled. List the outcomes of the event A if:

A is the event that a prime number appears.

7. A die is rolled. List the outcomes of the event A if:

A is the event that a composite number appears.

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8. A die is rolled. List the outcomes of the event A if:

A is the event that a multiple of 2 appears.

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9. A die is rolled. List the outcomes of the event A if:

A is the event that a number not less than 4 appears.

10. A die is rolled. Find the probability of getting:

a number greater than 5.

11. A die is rolled. Find the probability of getting:

a multiple of 5.

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12. A die is rolled. Find the probability of getting:

a non - prime number.

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13. An unbiased die is rolled. Find the probability of getting:

an even number.

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14. A card is drawn from a pack of cards. Find the probability that:

If is a 10 of hearts.

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15. A card is drawn from a pack of cards. Find the probability that:

It is a 6 of spades.

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16. A card is drawn from a pack of cards. Find the probability that:

it is red in colour.

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17. A card is drawn from a pack of cards. Find the probability that:

it is black in colour,

18. A card is drawn from a pack of cards. Find the probability that:

it is a card of spades.

19. A card is drawn from a pack of cards. Find the probability that:

it is a king.

20. A box has 15 slips with numbers from 1 to 15 written on them, one slip with one number. One slip is drawn from the box at random. Find the probability that the slip drawn has a multiple of 5.

21. A bag has 5 chocolate candies and 7 vanila candies. One candy is drawn out at random. Find the probability that the candy drawn is vanila.

22. A pencil box has 5 fountain pens. 3 blue pencils. And 7 red pencils. One item is taken out of the box at random. Find the probability

that the item is a:

fountain pen

23. A pencil box has 5 fountain pens. 3 blue pencils. And 7 red pencils. One item is taken out of the box at random. Find the probability that the item is a:

red pencil

24. A pencil box has 5 fountain pens. 3 blue pencils. And 7 red pencils. One item is taken out of the box at random. Find the probability that the item is a:

pencil

25. A class has 20 girls and 16 boys. One student is selected at random. Find the probability that the student is a girl.

26. A six - faced die has 3 faces red, 2 blue 1 white. The die is rolled. Find the probability that the face that shows is:

red

27. A six - faced die has 3 faces red, 2 blue 1 white. The die is rolled. Find the probability

that the face that shows is:

blue

28. A six - faced die has 3 faces red, 2 blue 1 white. The die is rolled. Find the probability that the face that shows is:

while

29. The letters of the word "CHANCES" are placed in a box and one letter is taken out. What is the probability of the following being the one taken out:

Vowel

30. The letters of the work "CHANCES" are placed in a box and one letter is taken out. What is the probability of the following being

the one taken out?

Consonants

Challenges

1. A card is drawn from a well shuffled pack of playing cards. What is the probability that it is either a spade or an ace or both?

2. A bag has 6 yellow, 9 red, and 12 blue marbles. A marble is drawn at random. Find the probability that it is either red or blue.

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Unit Pratice Paper Vi Fill In The Blanks

1. The median of 3,5,9,11,13,15 is _____

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2. The arithmetic mean of first 10 natural numbers is _____

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3. The mode of the data (1,2,1,5,6,7,8,1) is _____

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4. The range of data (2,3,5,6,8,11,13) is _____

5. The arithmetic mean of 3a, 3b, 3c is _____

Unit Pratice Paper Vi

1. Following are the number of members in 20 families of the smallest size?

6,8,3,2,5,7,8,6,5,5,7,7,8,6,6,7,7,6,5

What is the smallest family size? How many families are of the smallest size?

2. Following are the number of members in 20 families of the smallest size?

6,8,6,3,2,5,7,8,6,5,5,7,7,8,6,6,7,7,6,5

Find the average familiy size.

3. Following are the number of members in 20 families of the smallest size?

6,8,3,2,5,7,8,6,5,5,7,7,8,6,6,2,7,6,5,3

What is the mode of the data given?

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4. A die is thrown 12 times and the source are recorded in the following table.

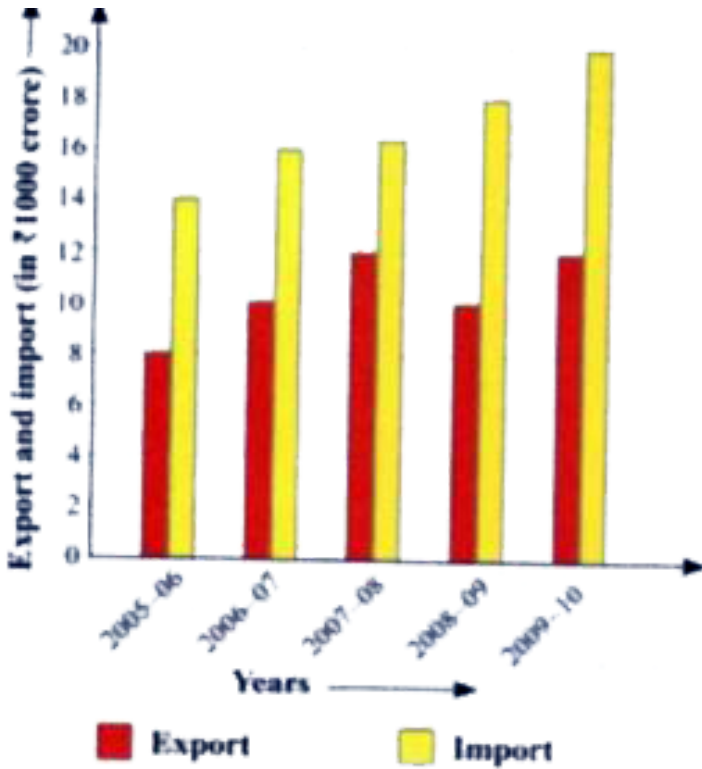| Throw	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
Scores	2	3	2	3	1	6	5	4	2	3	1	2

Find the range, mean and mode of the given scores.

5. Read the bar graph and answer the following questions.

What information is given by the bar graph?

Export and import (in ₹1000 crore) →

20
18
16
14
12
10
8
6
4
2
0

2005-06   2006-07   2007-08   2008-09   2009-10

Years →
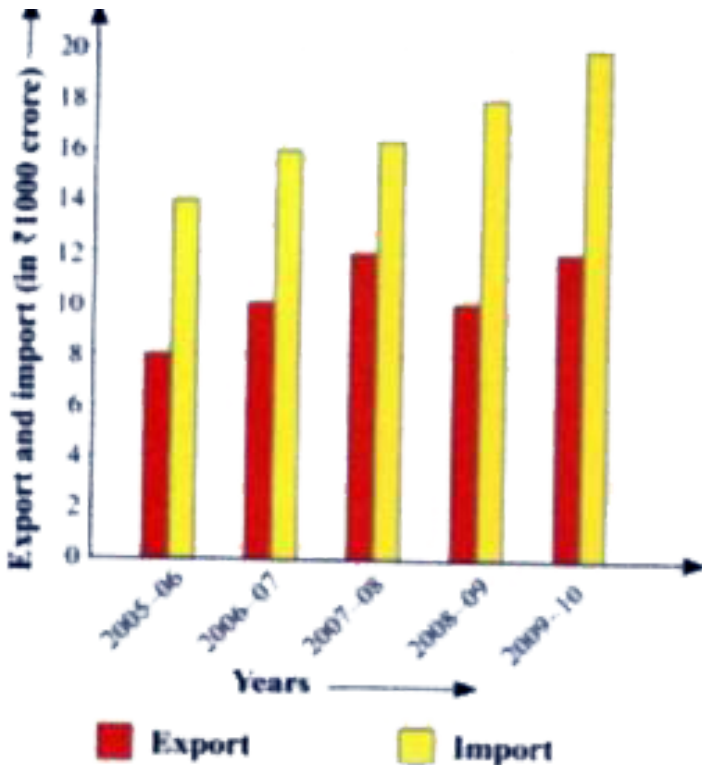
■ Export   □ Import

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6. Read the bar graph and answer the following questions.

In which year the difference of the values of export and import is maximum?
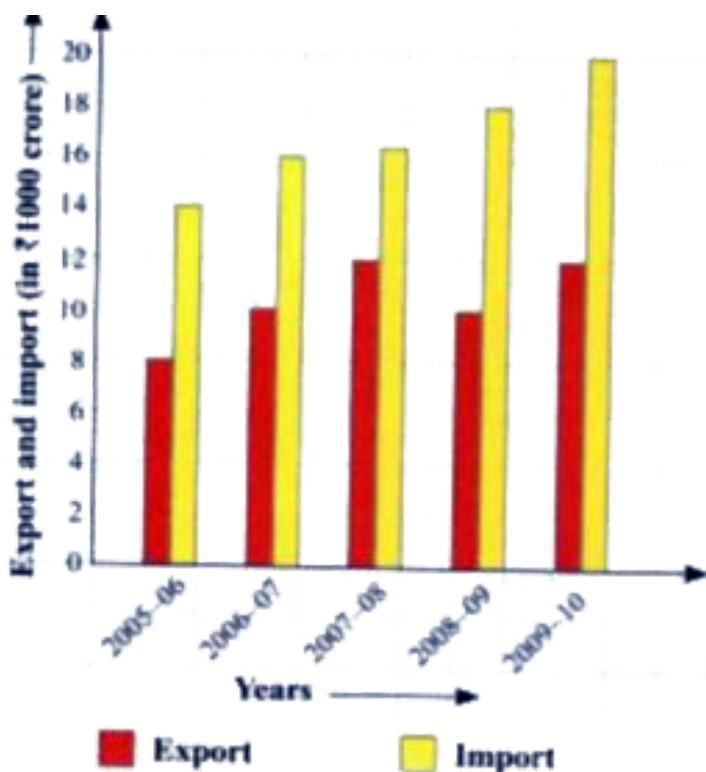
7. Read the bar graph and answer the following questions.

in which year the value of the export is greater than that of the import?

8. A jar contains 3 blue, 2 black, 6 red, and 8 white balls, If a ball is drawn at random from the jar, find the probability that the ball drawn is:

blue

9. A jar contains 3 blue, 2 black, 6 red, and 8 white balls, If a ball is drawn at random from the jar, find the probability that the ball drawn is:

not red

10. A jar contains 3 blue, 2 black, 6 red, and 8 white balls, If a ball is drawn at random from the jar, find the probability that the ball drawn

is:

white

11. A jar contains 3 blue, 2 black, 6 red, and 8 white balls, If a ball is drawn at random from the jar, find the probability that the ball drawn is:

not black

12. Classify the following outcomes as likely, unlikely, possible impossible, even change, or certain.

The number on the top face of an ordinary die when rolled will be less than 7.

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13. Classify the following outcome as likely, unlikely, possible ,impossible or certain.

A dog will have kittens.

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14. Classify the following outcomes as likely, unlikely, possible impossible, even change, or certain.

Monday will be the day after Tuesday next month.

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15. Classify the following outcomes as likely, unlikely, possible impossible or certain.

Your friend will call you tonight.

16. Classify the following outcomes as likely, unlikely, possible impossible, even change, or certain.

There will be floods in Delhi tomorrow.

17. A card is drawn from a pack of 52 cards. What is probability that is a black king?

18. Nitin has three 50-rupee notes, and sis 500-rupee notes in his pocket. If one note is taken out randomly. Then what is the probability that is a

50-rupee note?

19. Nitin has three 50-rupee notes and six 500-rupee notes in his pocket. If one note is taken out randomly. Then what is the probability that is a

500-rupee note?

20. Nitin has three 50-rupee notes, and sis 500-rupee notes in his pocket. If one note is taken out randomly. Then what is the

probability that is a

100 - rupee note?

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21. A die is rolled. What is the probability of getting a multiple of 2?

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22. A bag has 10 green 5 white, and 4 red balls. One ball is drawn at random. What is the

probability that it is white?

Try This

1. Next February will have 30 days.

2. You fall off your bike on the way home from school.

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3. You complete all your Maths homework correctly.

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4. Your parents decide to double your pocket money next week.

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5. All the tyres of the school bus will get flat tomorrow.

6. The school bus will be on time tomorrow.

7. State whether statement is certain or uncertain :Today is Sunday and tomorrow will

be Monday.

8. A card is drawn from a pack of 52 cards. Find the probability of getting a card of spades

9. Sandy can speed the evening either reading a book or visiting her friend Seema or Esha.

Find the probability that Sandy

reads a boo in the evening.

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10. Sandy can speed the evening either

reading a book or visiting her friend Seema or

Esha. Find the probability that Sandy

visits Esha in the evening.

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11. Sandy can speed the evening either reading a book or visiting her friend Seema or Esha. Find the probability that Sandy visits a friend in the evening.

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12. A die is rolled. Find the probability that a prime number shows.

▶ **Watch Video Solution**

13. A die is rolled. Find the probability that a number not less than 5 shows.

▶ **Watch Video Solution**

14. A die is rolled. Find the probability that a number greater than or equal to 3 shows.

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