MATHS

BOOKS - S CHAND IIT JEE FOUNDATION

DATA HANDLING

Solved Examples

1. A dice is rolled once. What is the probability of getting :

a 3 ?

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2. A die is thrown once. What is the probability of getting an even number?

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3. A bag contains 4 red, 6 blue and 7 yellow balls. One ball is selected at random. What is the probability that it is a red ball ?

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4. A bag contains 4 red, 6 blue and 7 yellow balls. One ball is selected at random. What is the probability that it is blue or yellow ball

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5. A bag contains 4 red, 6 blue and 7 yellow balls. One ball is selected at random. What is the probability that it is not blue ball

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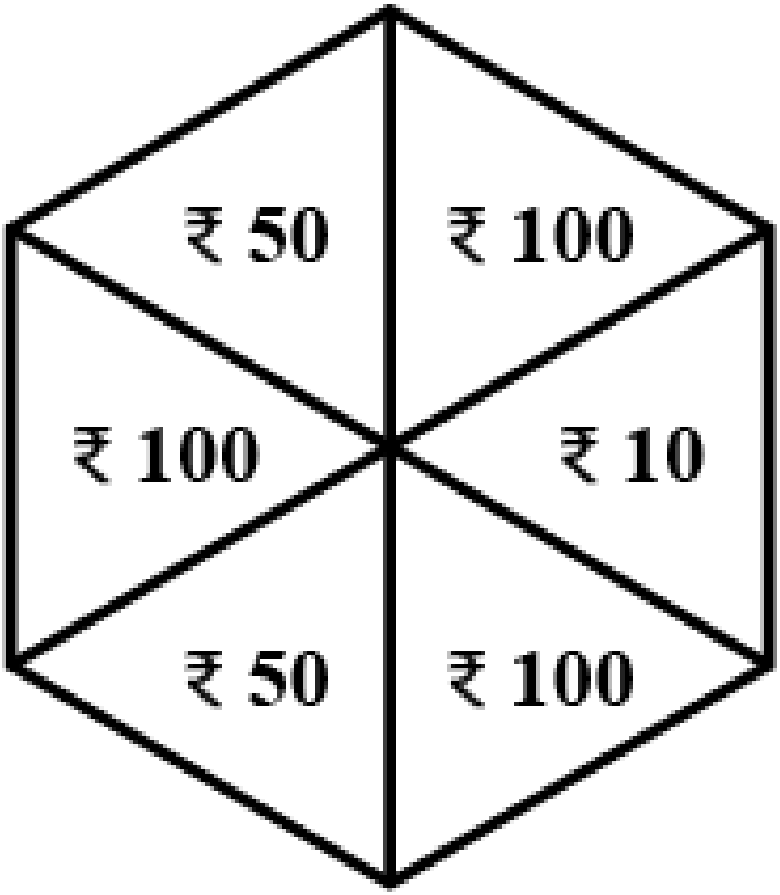
6. What is probability of the spinner landing on Rs 100



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7. One of 26 letter keys on a type writer is pressed . What is the probability that the key prints a letter other than 'a' ?

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8. A survey of the local neighbourhood showed that 15% of the population was under 12 years old and 25% of the population was over 60 years. What is probability that a

person selected at random was between 12 years old and 60 years old ?

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9. The probability of selecting a queen from a standard pack of cards is $\frac{1}{13}$. Find the probability of not selecting a queen ?

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10. A card is drawn from a pack of 52 cards. What is the probability that it is a black card ?

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11. A card is drawn from a pack of 52 cards. What is the probability that it is a seven?

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12. A card is drawn from a pack of 52 cards. What is the probability that it is a red Queen?

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13. What is the probability of drawing a red face card from a pack of 52 playing cards.

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Question Bank 24 A

1. Which of the following represents statistical data ?

A. The names of owners of shops located in a shopping complex

B. A list giving the names of all states of India

C. A list of all European countries and their respective capital cities

D. The volume of rainfall in a certain geographical area recorded every month

for 24 consecutive months

Answer: D

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2. In statistics, a suitable graph for representing the partitioning of total into sub parts is

A. A bar graph

B. A picto graph

C. A pie chart

D. A line graph

Answer: C

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3. The following table gives the areas of the oceans of the word :

Ocean	Area (million km^2)
Pacific	70.8
Atlantic	41.2
Indian	28.5
Antarctic	7.6
Arctic	4.8

A pie diagram of this data is to be drawn. What is the angle which the sector representing Pacific Ocean subtends at the centre ?

A. 167°

B. 97°

C. 67°

D. 18°

Answer: A

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4. Which of the following statements is not correct for a bar graph ?

A. All bars have different thickness

B. Distance between two consecutive bars is the same

C. The bars can touch each other

D. The thickness has no significance

Answer: A

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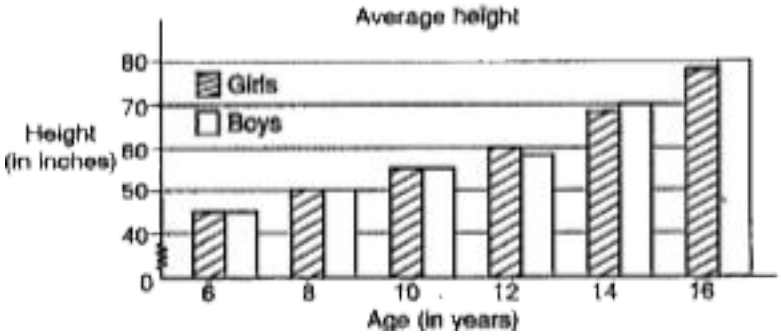
5. The given double graph shows the average heights of boys and girls at specific ages. Which conclusion is supported by the graph ?



A. Girls are taller than boys until the age of

14

B. Girls and boys grow the same amount each year.

C. After the ago of 14 , boys grow faster than girls

D. Boys are always taller than girls

Answer: C

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6. You want to display a set of data showing the number of students in the line for lunch in the school canteen every 15 minutes during the lunch - break . Which graph shall display the data most appropriately ?

A. Bar Graph

B. Line Graph

C. Pic Graph

D. Pictograph

Answer: B

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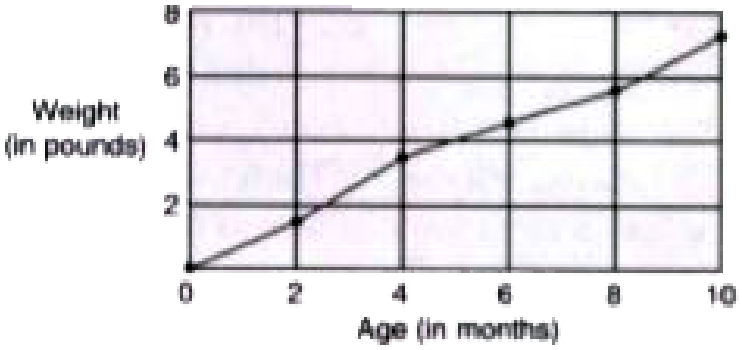
7. The given line graph shows the growth rate of a kitten . During which 2 - month period, the kitten's weight increased the most



A. 0 to 2 months

B. 2 to 4 months

C. 4 to 6 months

D. 6 to 8 months

Answer: B

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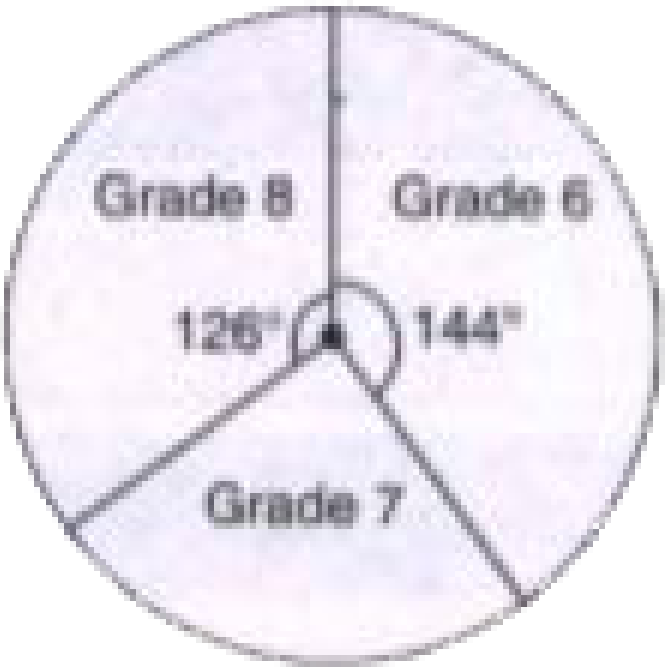
8. From the pie graph shown alongside . Find the per cent of students that are seventh

grades



A. 35 %

B. 40 %

C. 25 %

D. 28 %

Answer: C

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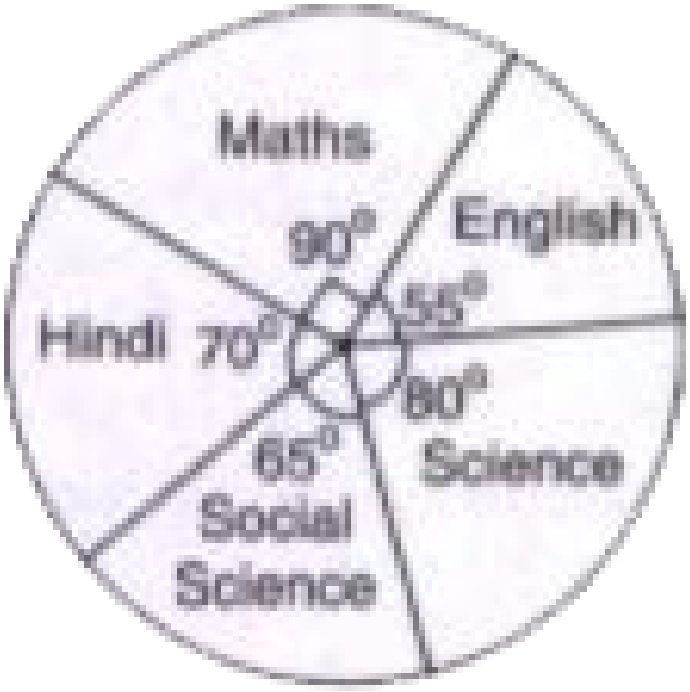
9. The given pie- chart shows the marks scored by a students in five different subjects - English, Hindi, Mathematics, Science and Social Science. Assuming that the total marks obtained for the examination are 540 , find the subject in which the student scored 22.2%

marks



A. Hindi

B. Science

C. Social Science

D. English

Answer: B

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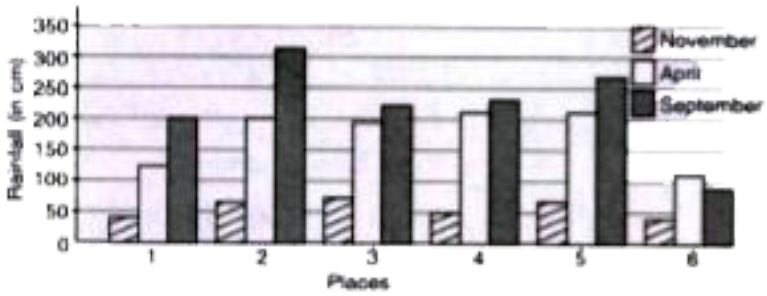
10. The following bar graph shows the rainfall at selected locations in certain months.



Which of the following statements is correct :

A. November rainfall exceeds 100 cm in each location

B. September rainfall exceeds April rainfall by 50 cm in each location

C. November rainfall is lower than April rainfall in each location

D. None of the above

Answer: C

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11. The data given below are the times in minutes, it takes seven students to go to school from their homes . Which statement about the data is false ?

11, 6, 22, 7, 10, 6, 15

A. The median is 11

B. The mean is 11

C. The range is 16

D. The mode is 6

Answer: A

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12. A variate takes 11 values which are arranged in ascending order of their magnitudes. It if found that 4th, 6th and 8th observations are 8, 6 and 4 respectively. What is the median of the distribution ?

A. 4

B. 6

C. 8

D. 10

Answer: B

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13. From a series of 50 observations, an observation with the value of 45 is dropped, but the mean remains the same . What was the mean of 50 observations ?

A. 50

B. 49

C. 45

D. 40

Answer: C

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14. A person made 165 telephone calls in the month of May in a year . It was Friday on 1st May of the year. The average of telephone calls on Sundays of the month was 7. What was the

average of the telephone calls per day on the rest days of the month

A. $\frac{165}{31}$

B. 5

C. 7

D. $\frac{137}{27}$

Answer: B

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15. The mean of he marks in Statistics of 100 students in a class was 72 . The mean of marks for boys was 75, while their number was 70. The mean of marks of girls in the class was

A. 35

B. 65

C. 68

D. 86

Answer: B

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16. The numbers 4 and 9 have frequencies x and (x - 1) respectively. If their arithmetic mean is 6, then x is equal to :

A. 2

B. 3

C. 4

D. 5

Answer: B

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17. If the median of $\frac{x}{5}, \frac{x}{4}, \frac{x}{2}, x$ and $\frac{x}{3}$, where $x > 0$, is 8, find the value of x

HINT Arranging the observation in ascending we have $\frac{x}{5}, \frac{x}{4}, \frac{x}{3}, \frac{x}{2}, x$

$\text{Median} = \frac{x}{3} = 8$

A. 24

B. 32

C. 8

D. 16

Answer: A

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18. The frequency distribution of discrete data given below, the frequency x against value 0 is missing. Variable $x: 012345$ Frequency $f: x204040204$ If the mean is 2.5, then the missing frequency x will be

A. 0

B. 1

C. 3

D. 4

Answer: D

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19. The average of ten numbers is 7. If each number is multiplied by 12, then the average of the new set of numbers is : (a) 7 (b) 19 (c) 82 (d) 84

A. 82

B. 48

C. 78

D. 84

Answer: D

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20. The arithmetic mean of the scores of a group of students in a test was 52. The brightest 20% of them secured a mean score

of 80 and the dullest 25% a mean score of 31.

The mean score of remaining 55% is :

A. $45\ \%$

B. $50\ \%$

C. $51.4\ \%$ (approx)

D. $54.6\ \%$ (approx)

Answer: C

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Question Bank 24 B

1. The event of drawing a red card from a pack of blue, white and black cards is

A. unlikely

B. certain

C. impossible

D. likely

Answer: C

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2. On the probability line, we would describe the event - a new born child will be a girl as

A. unlikely

B. even chance

C. certain

D. impossible

Answer: B

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3. In a class there are 14 boys and 10 girls. If one child is absent, the probability that it is a boy is

A. $\frac{5}{12}$

B. $\frac{7}{12}$

C. $\frac{10}{14}$

D. $\frac{1}{3}$

Answer: B

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4. A box contains 8 slips of paper which are numbered 0 to 7 . If one slip of paper is drawn unseen the probability of drawing a number greater than 4 is

A. $\frac{0}{8}$

B. $\frac{1}{8}$

C. $\frac{1}{4}$

D. $\frac{3}{8}$

Answer: C

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5. A dice is thrown once. Find the probability of getting a prime number .

A. $\frac{2}{3}$

B. $\frac{1}{2}$

C. $\frac{1}{6}$

D. $\frac{5}{6}$

Answer: B

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6. A bag contains red, white and blue marbles.

The probability of selecting a red marble is $\frac{2}{15}$ and that of selecting a blue marble is $\frac{4}{15}$.

The probability of selecting a white marble is

A. $\frac{13}{15}$

B. $\frac{11}{15}$

C. $\frac{3}{5}$

D. $\frac{2}{5}$

Answer: C

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7. A single letter is selected at random from the word "PROBABILITY" . The probability that it is a vowel is

A. $\frac{3}{11}$

B. $\frac{6}{11}$

C. $\frac{4}{11}$

D. $\frac{7}{11}$

Answer: C

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8. The probability of drawing a red 9 from a standard pack of 52 plying cards is

A. $\frac{1}{13}$

B. $\frac{1}{26}$

C. $\frac{1}{2}$

D. $\frac{1}{4}$

Answer: B

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9. Eight sided dice are used in adventure games. They are marked with the numbers 1 to 8 teh score is the upper most face. The probability of scoring a square number is

A. $\frac{3}{8}$

B. $\frac{1}{2}$

C. $\frac{1}{8}$

D. $\frac{1}{4}$

Answer: D

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10. The probability of drawing a face card from a standard pack of 52 cards is

A. $\frac{4}{13}$

B. $\frac{1}{13}$

C. $\frac{3}{13}$

D. $\frac{10}{13}$

Answer: C

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11. A box contains 50 coloured stones. What is the total number of orange stones in the box if the probability of selecting an orange stone is 0 . 4

A. 20

B. 0

C. 10

D. 40

Answer: A

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12. Akshay spins a spinner that is split into 10 equal sections . The sections are labelled 1, 3, 2, 1, 2, 2, 3, 1, 2, 1 . What is the probability that the spinner will land on the number 2

A. $\frac{1}{10}$

B. $\frac{2}{5}$

C. $\frac{1}{2}$

D. $\frac{1}{5}$

Answer: B

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13. A chocolate gift box contains 15 chocolates. Six are 'Five Stars' four are 'Fruit 'n' Nut', five are 'Dairy Milk' . After I have eaten the first chocolate, a 'Fruit 'n' Nut' . I pick another one. The probability that I pick a 'Fruit n Nut` again is

A. $\frac{4}{15}$

B. $\frac{1}{3}$

C. $\frac{1}{5}$

D. $\frac{3}{14}$

Answer: D

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14. This frequency table shows the results of a small class quiz . If a student is selected at random, the probability that he or she scored

2, 4, or 5 is

Marks	Frequency
1	4
2	3
3	2
4	6
5	5

A. $\frac{3}{20}$

B. $\frac{1}{4}$

C. $\frac{7}{10}$

D. $\frac{9}{20}$

Answer: C

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15. The king, queen and jack of hearts are removed from a deck of 52 playing cards and well shuffled. One card is selected from the remaining cards. The probability of drawing a '10' of hearts is

A. $\frac{10}{49}$

B. $\frac{13}{49}$

C. $\frac{3}{49}$

D. $\frac{1}{49}$

Answer: D

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Self Assessment Sheet 24

1. Which data set has a median of 16 ?

A. 16, 21, 26, 29, 32

B. 0, 4, 7, 10, 16, 16

C. 0, 9, 31, 17, 18, 22

D. 25, 14, 7, 16, 21

Answer: D

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2. A batsman scores 80 runs in his sixth innings and thus increases his average by 5. What is his average after six innings ?

A. 50

B. 55

C. 60

D. 65

Answer: B

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3. The average salary of male employees in a firm was Rs. 5200 and that of female was Rs. 4200 . The mean salary of all the employees was Rs. 5000 . What is the percentage of female employees ?

A. $40\ \%$

B. $30\ \%$

C. $25\ \%$

D. $20\ \%$

Answer: D

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4. The mean, median and mode of given data of scores are 21, 23 and 22 respectively. If 3 is

added to each score. What are the new values of mean, median and mode respectively.

A. 21, 23, 24

B. 24, 26, 25

C. 24, 23, 22

D. 23, 21, 24

Answer: B

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5. A student represents his scores in Mathematics . Statistics and Economics in a pie- chart. The central angle for Mathematics is 120° . He scored 96 in Statistics and 84 in Economics. The central angle for Statistics is :

A. 116°

B. 128°

C. 192°

D. 212°

Answer: B

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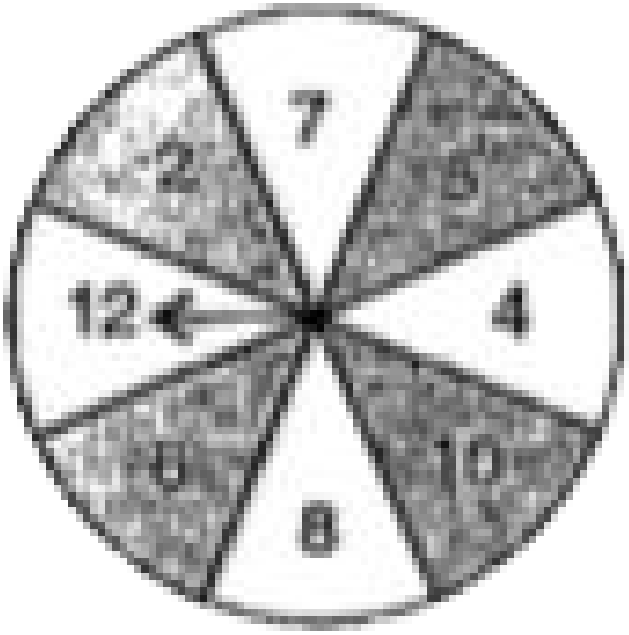
6. The spinner is divided into 8 equal parts. Find the probability of



(i) Pointer lands on the shaded part

(ii) Pointer lands on a prime number

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7. Jenny draws a card from a standard pack of 52 cards. What is the probability that she draws an Ace or a King .

A. $\frac{4}{13}$

B. $\frac{1}{13}$

C. $\frac{9}{13}$

D. $\frac{2}{13}$

Answer: D

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8. Jenny draws a card from a standard pack of 52 cards. What is the probability that she draws a card showing number 3 .

A. $\frac{2}{3}$

B. $\frac{3}{4}$

C. $\frac{1}{13}$

D. $\frac{1}{2}$

Answer: C

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9. Jenny draws a card from a standard pack of 52 cards. What is the probability that she draws a king of diamond .

A. $\frac{1}{52}$

B. $\frac{2}{3}$

C. $\frac{1}{6}$

D. $\frac{5}{6}$

Answer: A

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10. Jenny draws a card from a standard pack of 52 cards. What is the probability that she draws an Ace or a King .

A. $\frac{1}{4}$

B. $\frac{2}{13}$

C. $\frac{1}{2}$

D. $\frac{1}{3}$

Answer: B

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