SRI KANCHI MAHASWAMI VIDYA MANDIR
QUESTION BANK
MATHEMATICS

CLASS - VII

INTEGERS
ONE MARK

1.Sum of integer and its additive inverse is ……..
2.Sum of -22 and -44 is …….
3.-36 ÷ (……..)=-9
4. ……. is absolute value of -998
5.Sum of two negative numbers is always
a. Positive
b. Negative
c. 0
d. 1
6.Which property is reflected in this equation 7×5=5×7
e. Closure
f. Commutative
g. Associative
h. Distributive

THREE MARKS

1. A diver descends 20 feet in the water from the boat at the surface of a lake. He then rose 12 feet and descends another 18 feet. At this point what is his depth in water?
2. Verify a-(-b) =a + b for the following values of 'a' and 'b'
a)a=34 b=73 b)a=45 b=30
2.Write down the pair of integers whose Sum is -4
a. Sum is 0
b. Difference is 2
c. Difference is -6
3. Verify the following

a. (-22) × [(-4) + (-5)]=[(-22) × (-4)] + [(-22) × (-5)]
b. (-12) × [(3) + (-9)]=[(-12) × (4)] + [(-12) × (-9)]
4.Evaluate
a. (-100)÷5
b. (-36)÷(-4)
c. (0)÷(-12)
d. [(-30)÷5]÷2
e. (-40)÷40

FIVE MARKS

1.The price if a stock decreases Rs. 45 per day for four consecutive days. What was the total change in value of the stock over 4 day period?
2. A group of hikers is descending the mountain at a rate of 600 feet per hour. What is the change in elevation of hiker after 6 hours?
3.An elevator descends into a mine shaft at the rate of 6 m/min. If the descent starts from 10 m above the ground level, how long will it take to reach -350 m.
4.In a test (+5) marks are given for every correct answer and (-2) marks are given for every incorrect answer.
i. Radhika answered all the questions and scored 30 marks and got 10 correct answers
ii. Jay also answered all the questions and scored (-12) marks though he got 4 correct answers
How many incorrect answers had they attempted?

5. In a test (+5) marks are given for every correct answer and (-2) marks are given for every incorrect answer and 0 for answer not attempted. Ram gets 3 correct and 4 incorrect out of 7 questions he attempted. What is his score?

FRACTIONS AND DECIMALS

1 MARK

(a) (i) Provide the number in the box $\square$, such that $\frac{2}{3}\times\square=\frac{10}{30}$

(ii) The simplest form of the number obtained in $\square$ is _____.

(b) (i) Provide the number in the box $\square$, such that $\frac{3}{5}\times\square=\frac{24}{75}$

(ii) The simplest form of the number obtained in $\square$ is _____.

3 MARKS

1. A rectangular sheet of paper is $12\frac{1}{2}$ cm long and $10\frac{2}{3}$ cm wide. Find its perimeter.
2. Salil wants to put a picture in a frame. The picture is $7\frac{3}{5}$ cm wide. To fit in the frame the picture cannot be more than $7\frac{3}{10}$ cm wide. How much should the picture be trimmed?
3. Ritu ate 3/5 part of an apple and the remaining apple was eaten by her brother Somu. How much part of the apple did Somu eat? Who had the larger share? By how much?
4. Michael finished colouring a picture in 7/12 hour. Vaibhav finished colouring the same picture in 3/4 hour. Who worked longer? By what fraction was it longer?
5. Multiply and reduce to lowest form and convert into a mixed fraction:

   (i) $7\times\frac{3}{5}$ (ii) $4\times\frac{1}{3}$

   (iii) $2\times\frac{6}{7}$ (iv) $5\times\frac{2}{9}$

   (v) $\frac{2}{3}\times4$ (vi) $\frac{5}{2}\times6$

   (vii) $11\times\frac{4}{7}$ (viii) $20\times\frac{4}{5}$

   (ix) $13\times\frac{1}{3}$ (x) $15\times\frac{3}{5}$

6. Find:

   (a) $\frac{1}{2}$ of (i) 24 (ii) 46

   (b) $\frac{2}{3}$ of (i) 18 (ii) 27

   (c) $\frac{3}{4}$ of (i) 16 (ii) 36

   (d) $\frac{4}{5}$ of (i) 20 (ii) 35

7. Multiply and express as a mixed fraction :

(a) $3 \times 5\frac{1}{5}$ (b) $5 \times 6\frac{3}{4}$

(c) $7 \times 2\frac{1}{4}$ (d) $4 \times 6\frac{1}{3}$

(e) $3\frac{1}{4} \times 6$ (f) $3\frac{2}{5} \times 8$

8. Find

(a) $\frac{1}{2}$ of (i) $2\frac{3}{4}$ (ii) $4\frac{2}{9}$

(b) $\frac{5}{8}$ of (i) $3\frac{5}{6}$ (ii) $9\frac{2}{3}$

9. Find :

(i) $\frac{1}{4}$ of (a) $\frac{1}{4}$ (b) $\frac{3}{5}$ (c) $\frac{4}{3}$

(ii) $\frac{1}{7}$ of (a) $\frac{2}{9}$ (b) $\frac{6}{5}$ (c) $\frac{3}{10}$

10. Multiply and reduce to lowest form (if possible) :

(i) $\frac{2}{3} \times 2\frac{2}{3}$ (ii) $\frac{2}{7} \times \frac{7}{9}$

(iii) $\frac{3}{8} \times \frac{6}{4}$ (iv) $\frac{9}{5} \times \frac{3}{5}$

(v) $\frac{1}{3} \times \frac{15}{8}$ (vi) $\frac{11}{2} \times \frac{3}{10}$

(vii) $\frac{4}{5} \times \frac{12}{7}$

11. Saili plants 4 saplings, in a row, in her garden. The distance between two adjacent saplings is 3/4m. Find the distance between the first and the last sapling.

12. Lipika reads a book for $1\frac{3}{4}$hours everyday. She reads the entire book in 6 days. How many hours in all were required by her to read the book?

13. A car runs 16 km using 1 litre of petrol. How much distance will it cover using $2\frac{3}{4}$ litres of petrol?

14. Find:

(i) $12 \div \frac{3}{4}$ (ii) $14 \div \frac{5}{6}$

(iii) $8 \div \frac{7}{3}$ (iv) $4 \div \frac{8}{3}$

(v) $3 \div 2\frac{1}{3}$ (vi) $5 \div 3\frac{4}{7}$

15. Find the reciprocal of each of the following fractions. Classify the reciprocals as proper fractions, improper fractions and whole numbers.
(i) 37 (ii) 58 (iii) 97 (iv) 65 (v) 127 (vi) 18 (vii) 111

16. Find:

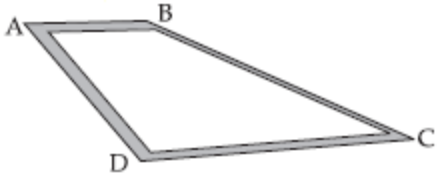
(i) $\frac{2}{5} \div \frac{1}{2}$ (ii) $\frac{4}{9} \div \frac{2}{3}$

(iii) $\frac{3}{7} \div \frac{8}{7}$ (iv) $2\frac{1}{3} \div \frac{3}{5}$

(v) $3\frac{1}{2} \div \frac{8}{3}$ (vi) $\frac{2}{5} \div 1\frac{1}{2}$

(vii) $3\frac{1}{5} \div 1\frac{2}{3}$ (viii) $2\frac{1}{5} \div 1\frac{1}{5}$

17. Express as rupees using decimals :
    (i) 7 paise
    (ii) 7 rupees 7 paise
    (iii) 77 rupees 77 paise
    (iv) 50 paise
    (v) 235 paise.
18. (i) Express 5 cm in metre and kilometre.
    (ii) Express 35 mm in cm, m and km.
19. Express in kg:
    (i) 200 g (ii) 3470 g (iii) 4 kg 8 g
20. Write the following decimal numbers in the expanded form:
    (i) 20.03 (ii) 2.03 (iii) 200.03 (iv) 2.034
21. Dinesh went from place A to place B and from there to place C. A is 7.5 km from B and B is 12.7 km from C. Ayub went from place A to place D and from there to place C. D is 9.3 km from A and C is 11.8 km from D. Who travelled more and by how much?



22. Shyama bought 5 kg 300 g apples and 3 kg 250 g mangoes. Sarala bought 4 kg 800 g oranges and 4 kg 150 g bananas. Who bought more fruits?
23. How much less is 28 km than 42.6 km?
24. Find the area of rectangle whose length is 5.7cm and breadth is 3 cm.
25. A two-wheeler covers a distance of 55.3 km in one litre of petrol. How much distance will it cover in 10 litres of petrol?
26. Find:
    (i) 4.8 ÷ 10 (ii) 52.5 ÷ 10 (iii) 0.7 ÷ 10 (iv) 33.1 ÷ 10
    (v) 272.23 ÷ 10 (vi) 0.56 ÷ 10 (vii) 3.97 ÷10
27. Find:
    (i) 2.7 ÷ 100 (ii) 0.3 ÷ 100 (iii) 0.78 ÷ 100 (iv) 432.6 ÷ 100
    (v) 23.6 ÷100 (vi) 98.53 ÷ 100

28. Find:
    (i) 7.9 ÷ 1000 (ii) 26.3 ÷ 1000 (iii) 38.53 ÷ 1000
    (iv) 128.9 ÷ 1000 (v) 0.5 ÷ 1000
29. Find: (i) 7 ÷ 3.5 (ii) 36 ÷ 0.2 (iii) 3.25 ÷ 0.5 (iv) 30.94 ÷ 0.7
    (v) 0.5 ÷ 0.25 (vi) 7.75 ÷ 0.25 (vii) 76.5 ÷ 0.15 (viii) 2.73 ÷ 1.3

30. A vehicle covers a distance of 43.2 km in 2.4 litres of petrol. How much distance will it cover in one litre of petrol?

5 MARKS

1. Solve :
    (i) $2-\frac{3}{5}$ (ii) $4+\frac{7}{8}$
    (iii) $\frac{3}{5}+\frac{2}{7}$ (iv) $\frac{9}{11}-\frac{4}{15}$
    (v) $\frac{7}{10}+\frac{2}{5}+\frac{3}{2}$ (vi) $2\frac{2}{3}+3\frac{1}{2}$
    (vii) $8\frac{1}{2}-3\frac{5}{8}$

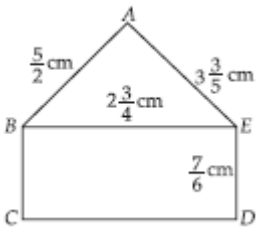
2. Arrange the following in descending order:
(i) 2/9 , 2/3 , 8/21 (ii) 1/5 , 3/7 , 7/10

3. In a ″magic square″, the sum of the numbers in each row, in each column and along the diagonals is the same. Is this a magic square?

$\frac{4}{11}$	$\frac{9}{11}$	$\frac{2}{11}$
$\frac{3}{11}$	$\frac{5}{11}$	$\frac{7}{11}$
$\frac{8}{11}$	$\frac{1}{11}$	$\frac{6}{11}$

(Along the first row $\frac{4}{11}+\frac{9}{11}+\frac{2}{11}=\frac{15}{11}$).

4. Find the perimeters of (i) ΔABE (ii) the rectangle BCDE in this figure. Whose perimeter is greater?



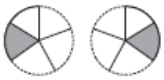
5. Which of the drawings (A) to (D) show :

(i) $2\times\frac{1}{5}$ (ii) $2\times\frac{1}{2}$ (iii) $3\times\frac{2}{3}$ (iv) $3\times\frac{1}{4}$

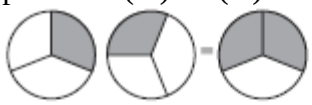
(a) 

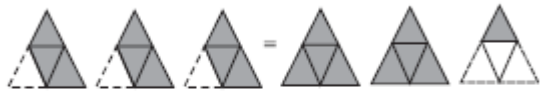
(b) 

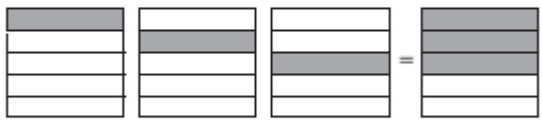
(c) 

(d) 

6. Some pictures (A) to (C) are given below. Tell which of them show:

(a) 

(b) 

(c) 

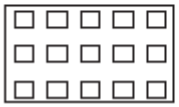
(i) $3\times\frac{1}{5}=\frac{3}{5}$ (ii) $2\times\frac{1}{3}=\frac{2}{3}$

(iii) $3\times\frac{3}{4}=2\frac{1}{4}$

7. Shade: (i) 1/2 of the circles in box (A); (ii) 2/3 of the triangles in box (B); (iii) 3/5 of the squares in box (C).

(a) 

(b) 

(c) 

8. Multiply the following fractions:

(i) $\frac{2}{5}\times 5\frac{1}{4}$ (ii) $6\frac{2}{5}\times\frac{7}{9}$

(iii) $\frac{3}{2}\times 5\frac{1}{3}$ (iv) $\frac{5}{6}\times 2\frac{3}{7}$

(v) $3\frac{2}{5}\times\frac{4}{7}$ (vi) $2\frac{3}{5}\times 3$

(vii) $3\frac{4}{7}\times\frac{3}{5}$

9. Which is greater :

(i) $\frac{2}{7}$ of $\frac{3}{4}$ or $\frac{3}{5}$ of $\frac{5}{8}$

(ii) $\frac{1}{2}$ of $\frac{6}{7}$ or $\frac{2}{3}$ of $\frac{3}{7}$

10 Find:

(i) $\frac{7}{3}+2$ (ii) $\frac{4}{9}+5$ (iii) $\frac{6}{13}+7$ (iv) $4\frac{1}{3}+3$

(v) $3\frac{1}{2}+4$ (vi) $4\frac{3}{7}+7$

11. Which is greater?

(i) 0.5 or 0.05 (ii) 0.7 or 0.5 (iii) 7 or 0.7 (iv) 1.37 or 1.49

(v) 2.03 or 2.30 (vi) 0.8 or 0.88.

12.FIND: (i) 0.2 × 6 (ii) 8 × 4.6 (iii) 2.71 × 5 (iv) 20.1 × 4

(v) 0.05 × 7 (vi) 211.02 × 4 (vii) 2 × 0.86

13 Find:

(i) 1.3 × 10 (ii) 36.8 × 10 (iii) 153.7 × 10 (iv) 168.07 × 10

(v) 31.1 × 100 (vi) 156.1 × 100 (vii) 3.62 × 100 (viii) 43.07 × 100

(ix) 0.5 × 10 (x) 0.08 × 10 (xi) 0.9 × 100 (xii) 0.03 × 1000

13. Find:

(i) 2.5 × 0.3 (ii) 0.1 × 51.7 (iii) 0.2 × 316.8 (iv) 1.3 × 3.1

(v) 0.5 × 0.05 (vi) 11.2 × 0.15 (vii) 1.07 × 0.02 (viii) 10.05 × 1.05

(ix) 101.01 × 0.01 (x) 100.01 × 1.1

14. Find:

(i) 0.4 ÷ 2 (ii) 0.35 ÷ 5 (iii) 2.48 ÷ 4 (iv) 65.4 ÷ 6

(v) 651.2 ÷ 4 (vi) 14.49 ÷ 7 (vii) 3.96 ÷ 4 (viii) 0.80 ÷ 5

DATA HANDLING

1 MARK

FILL IN THE BLANKS

1. The difference between the highest and the lowest observations of a data is called ----------
2. The mean of a data is ----------
3. In set of observations, the observation that occurs the most often is called ----------
4. In a given data, arranged in ascending or descending order, the middle most observation is called ----------
5. Mean, median, mode are measures of ----------
6. The probability of an event which is certain to happen is ----------
7. The probability of an event which 9is impossible to happen is ----------
8. When a die is thrown, the probability of getting a number less than 7 is ----------
9. In throwing a die the number of possible outcome is ----------
10. When a die is thrown, the probability of getting a number less than 7 is ----------
11. ---------- can be used to compare two collections of data.
12. The representation of data with bars of uniform width is called ----------
13. If the arithmetic mean of 8,4,x,6,2,7 is 5, then the value of x is ----------
14. The median of any data lies between the ---------- and ---------- observation.
15. Median is one of the observation in the data if number of observations is----------
16. What is the arithmetic mean of 1,2, ……. 9 and 10?
17. What is the mean of x, x+3, x+6,x+9 and x+12 ?
18. The median of 46, 64, 87, 41, 58, 77, 35, 90, 55,33, 92 = ----------
19. The mean of 6, y, 7, x and 14 is 8. Then which is true?

a) $x + y = 13$ b) $x - y + 13$ c) $2x + 3y = 13$ d) $x^2+y^2 = 15$

20. The mean of 1,2, 3, 4 and 5 = ----------

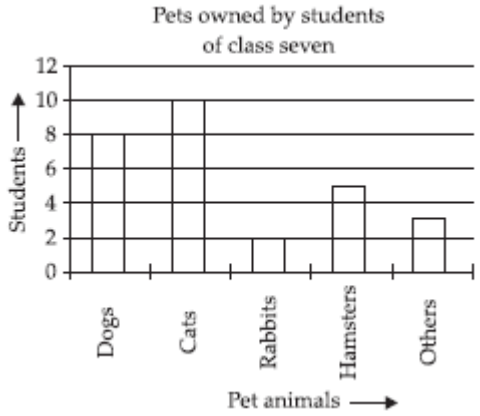
3 MARKS

1. Find the range of heights of any ten students of your class.
2. Find the mean of the first five whole numbers.
3. . A cricketer scores the following runs in eight innings:
   58, 76, 40, 35, 46, 45, 0, 100.
   Find the mean score
4. The marks (out of 100) obtained by a group of students in a Science test are 85, 76, 90, 85, 39, 48, 56, 95, 81 and 75. Find the:
   (i) Highest and the lowest marks obtained by the students.
   (ii) Range of the marks obtained.
   (iii) Mean marks obtained by the group.
5. The enrolment in a school during six consecutive years was as follows:
   1555, 1670, 1750, 2013, 2540, 2820 Find the mean enrolment of the school for this period.
6. The rainfall (in mm) in a city on 7 days of a certain week was recorded as follows:

Day	Mon	Tue	Wed	Thurs	Fri	Sat	Sun
Rainfall (in mm)	0.0	12.2	2.1	0.0	20.5	5.5	1.0

   (i) Find the range of the rainfall in the above data.
   (ii) Find the mean rainfall for the week.
   (iii) On how many days was the rainfall less than the mean rainfall?
7. The scores in Mathematics test (out of 25) of 15 students are as follows: 19, 25, 23, 20, 9, 20, 15, 10, 5, 16, 25, 20, 24, 12, 20
   Find the mode and median of this data. Are they same?
8. Find the mode and median of the data: 13, 16, 12, 14, 19, 12, 14, 13, 14

10. The weights (in kg.) of 15 students of a class are:
    38, 42, 35, 37, 45, 50, 32, 43, 43, 40, 36, 38, 43, 38, 47
    (i) Find the mode and median of this data.
    (ii) Is there more than one mode?
9. Use the bar graph to answer the following questions.
    (A) Which is the most popular pet?
    (B) How many students have dog as a pet?



10. Tell whether the following is certain to happen, impossible, can happen but not certain.
    (i) You are older today than yesterday.
    (ii) A tossed coin will land heads up.
    (iii) A die when tossed shall land up with 8 on top.
    (iv) The next traffic light seen will be green.
    (v) Tomorrow will be a cloudy day.
11. There are 6 marbles in a box with numbers from 1 to 6 marked on each of them.
    (i) What is the probability of drawing a marble with number 2?
    (ii) What is the probability of drawing a marble with number 5?
12. A coin is flipped to decide which team starts the game. What is the probability that your team will start?

5 MARKS

1. Organise the following marks in a class assessment, in a tabular form. 4, 6, 7, 5, 3, 5, 4, 5, 2, 6, 2, 5, 1, 9, 6, 5, 8, 4, 6, 7
    (i) Which number is the highest?
    (ii) Which number is the lowest?
    (iii) What is the range of the data?
    (iv) Find the arithmetic mean.
2. Following table shows the points of each player scored in four games:

Player	Game 1	Game 2	Game 3	Game 4
A	14	16	10	10
B	0	8	6	4
C	8	11	Did not play	13

Now answer the following questions: (i) Find the mean to determine A's average number of points scored per game.
(ii) To find the mean number of points per game for C, would you divide the total points by 3 or by 4? Why?
(iii) B played in all the four games. How would you find the mean?
(iv) Who is the best performer?

3. The heights of 10 girls were measured in cm and the results are as follows:
   135, 150, 139, 128, 151, 132, 146, 149, 143, 141.
   (i) What is the height of the tallest girl?
   (ii) What is the height of the shortest girl?
   (iii) What is the range of the data?
   (iv) What is the mean height of the girls?
   (v) How many girls have heights more than the mean height?
4. Arranging the given scores in ascending order, we have
   5, 9, 10, 12, 15, 16, 19, 20, 20, 20, 20, 23, 24, 25, 25 Find the median.
5. Number of children in six different classes are given below. Represent the data on a bar graph.

Class	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Number of Children	135	120	95	100	90	80

   (i) In which subject, has the child improved his performance the most?
   (ii) In which subject is the improvement the least?
   (iii) Has the performance gone down in any subject?
6. The performance of a student in 1st Term and 2nd Term is given. Draw a double bar graph choosing appropriate scale and answer the following:
   (i) In which subject, has the child improved his performance the most?
   (ii) In which subject is the improvement the least?

Subject	English	Hindi	Maths	Science	S. Science
1st Term (M.M. 100)	67	72	88	81	73
2nd Term (M.M. 100)	70	65	95	85	75

   (iii) Has the performance gone down in any subject?
7. Consider this data collected from a survey of a colony.

Favourite Sport	Cricket	Basket Ball	Swimming	Hockey	Athletics
Watching	1240	470	510	430	250
Participating	620	320	320	250	105

   (i) Draw a double bar graph choosing an appropriate scale.
   What do you infer from the bar graph?
   (ii) Which sport is most popular?
   (iii) Which is more preferred, watching or participating in sports?
8. Take the data giving the minimum and the maximum temperature of various cities given in the table. Plot a double bar graph using the data and answer the following:

Temperatures of Cities as on 20.6.2006		
City	Max.	Min.
Ahmedabad	38°C	29°C
Amritsar	37°C	26°C
Bangalore	28°C	21°C
Chennai	36°C	27°C
Delhi	38°C	28°C
Jaipur	39°C	29°C
Jammu	41°C	26°C
Mumbai	32°C	27°C

   (i) Which city has the largest difference in the minimum and maximum temperature on the given date?
   (ii) Which is the hottest city and which is the coldest city?
   (iii) Name two cities where maximum temperature of one was less than the minimum temperature of the other.
   (iv) Name the city which has the least difference between its minimum and the maximum temperature.

SIMPLE EQUATIONS

ONE MARK

1.Choose the correct option: A number is as much greater than 31 as it is less than 81. The number is _____.

i)462 ii) 563 iii) 664 iv) 76

2.Choose the correct option: If 2(2n + 5) = 3(3n - 10), then n = _____

a)52 b) 33 c) 74 d) 8

3.Choose the correct option: Two complementary angles differ by 20 degree. The smaller angle is _____ degree.

a)552 b) 253 c) 654 d)35

4.Choose the correct option: Two supplementary angles differs by 40 degree. The measure of the larger angle is _____degree.

a) 702 b) 803 c) 1104d) 100

5.Choose the correct option: Twice a number when increased by 7 gives 25. The number is _____.

a)72 b) 93 c) 84 d) 10

6.Choose the correct option: Two third of a number is greater than one third of the number by 5. The number is _____.

a)102 b)53 c) 154 d) 12

7.Choose the correct option: If the sum of a number and its two fifth is 70. The number is _____.

a)702 b)503 c) 604 d) 90

8.Choose the correct option: 2/3 of a number is less than the original number by 20. The number is _____.

a)302 b) 403 c)504 d) 60

9.Choose the correct option: The sum of two consecutive whole numbers is 43. The smaller number is _____.

a)21 b) 22 c) 234 d) 24

10.Choose the correct option: The sum of two consecutive odd numbers is 36. The larger number is _____.

a)35 b)45 c)15 d)19

11. What do we get when we transpose 5/2 to RHS in the equation x/4 + 5/2 = -3/3?
    I. x/4 = -3/4 + 5/2
    II. x/4 = -5/2 + ¾
    III. x/4 = -3/4 + (-5/2)
    IV. none of these

12. In the equation 3x = 4-x, transposing -x to LHS we get
    I. 3x - x = 4
    II. 3x + x = 4
    III. -3x + x = 4
    IV. -3x - x = 4

13. If x/3 + 1 = 7/15, then which of the following is correct?
    I. x/3 = 7/15 - 1
    II. x/3 = -7/15 + 1
    III. x/3 = -7/15 - 1
    IV. none of these

14. If 7x+15 = 50, then which of the following is the root of the equation?
    I. -5
    II. 65/7
    III. 5
    IV. 1/5

15. If 2x/5 = 4, the value of x is-
    I. 10
    II. -10
    III. -8/5
    IV. 8/5

16. If the sum of two consecutive numbers is 71 and one number is x, then the other number is-
    I. x + (x+1) = 71
    II. x + (x+2) = 71
    III. x + x = 71
    IV. none of these
17. Two year ago my age was x years, then what was my age 5 years ago?
    I. X + 7
    II. X - 2 - 5
    III. X - 5
    IV. X- 3
18. How old will I be after 10 years, if my age before 10 years was 'x' years?
    I. X + 20
    II. X - 20
    III. X + 10
    IV. X - 10
19. If the difference of two consecutive number is 15 and greater of them is x then the smaller number is:
    I. 16
    II. 14
    III. 8
    IV. 7
20. If x is an even number, which is the next odd number?
    I. X + 1
    II. X + 2
    III. X - 1
    IV. X – 2

3 MARKS

1. Solve $x/3 + 1/5 = x/2 – 1/4$
2. Show that $x = 4$ is a solution of the equation $x + 7 – 8x/3 = 17/6 – 5x/8$
3. Find x for the equation: $(2 + x)(7 – x)/(5 – x)(4 + x) = 1$
4. A number is such that it is as much greater than 45 as it is less than 75. Find the number.
5. Divide 40 into two parts such that 1/4th of one part is 3/8th of the other.
6. $x + 3x/2 = 35$. Find x.
7. A is twice old as B. Five years ago A was 3 times as old as B. Find their present ages.
8. Solve : $(x + 3)/6 + 1 = (6x – 1)/3$
9. The digits of a 2-digit number differ by 5. If the digits are interchanged and the resulting number is added to the original number, we get99. Find the original number.
10. Solve : $5x – 3 = 3x + 7$
11. Find the solution of $3x-4 = 12$
12. Solve: $5x-9 = 8$
13. What should be subtracted from thrice the rational number -8/3 to get 5/2?
14. The sum of three consecutive multiples of 7 is 63. Find these multiples.
15. Solve $3x/4 – 7/4 = 5x + 12$
16. Perimeter of a rectangle is 13cm. if its width is 11/4 cm, find its length.
17. The present of Sita's father is three times the present age of Sita. After six years sum of their ages will be 69 years. Find their present ages.
18. The digits of a two-digit number differ by 3. If digits are interchanged and the resulting number is added to the original number, we get 121. Find the original number.
19. $(x-2)/(x+1) = ½$. Find x
20. Sanjay will be 3 times as old as he was 4 years ago after 18 years. Find his present age.
21. If the sum of two numbers is 30 and their ratio is 2/3 then find the numbers.
22. The numerator of a fraction is 2 less than the denominator. If one is added to its denominator, it becomes 1/2 find the fraction.

23. Solve $x/3 + 1/5 = x/2 – 1/4$
24. Show that $x = 4$ is a solution of the equation $x + 7 – 8x/3 = 17/6 – 5x/8$
25. Find x for the equation: $(2 + x)(7 – x)/(5 – x)(4 + x) = 1$
26. A number is such that it is as much greater than 45 as it is less than 75. Find the number.
27. Divide 40 into two parts such that 1/4th of one part is 3/8th of the other.
28. $x + 3x/2 = 35$. Find x.
29. A is twice old as B. Five years ago A was 3 times as old as B. Find their present ages.
30. Solve : $(x + 3)/6 + 1 = (6x – 1)/3$
31. The digits of a 2-digit number differ by 5. If the digits are interchanged and the resulting number is added to the original number, we get99. Find the original number.
32. Solve : $5x – 3 = 3x + 7$

FIVE MARKS

1. Solve the following Equations (2 marks each)
   a) $(2x - 5)/(3x - 1) = (2x - 1)/(3x + 2)$
   b) $(3 - 7x)/(15 + 2x) = 0$
   c) $(0.4y - 3)/(1.5y + 9) = -7/5$
   d) $2/(3x - 1) + 3/(3x + 1) = 5/3x$
   e) $2/(x - 3) + 1/(x - 1) = 5/(x - 1) - 2/(x - 2)$
   f) $15(x - y) - 3(x - 9) + 5(x + 6) = 0$
   g) $y/2 - 1/2 = y/3 + 1/4$
   h) $(0.5y - 9)/0.25 = 4y - 3$
   i) (t) $[17(2 - y) - 5(y + 12)]/(1 - 7y) = 8$
2. Sunita is as twice as old as Ashima. If six years is subtracted from Ashima's age and 4 years added to Sunitas age, then Sunita will be four times Ashima’s age. How old were they two years ago?
3. The sum of two twin prime numbers is 60. Find the prime nos.
4. Of the three angles of a triangle, the second one is one third of the first and the third angle is 26 degrees more than the first angle. Find all the three angles of the triangle.
5. If one number is multiplied by the Number the resulting number is the sum of the square of the first number and cube root of the second number. Find the number of such Pairs.

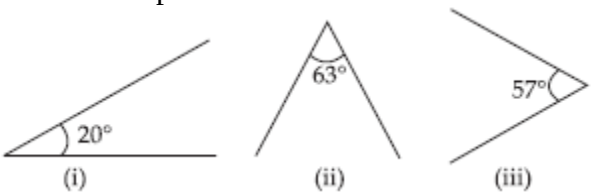
LINES AND ANGLES

1 MARK

1. Fill in the blanks:
   (i) If two angles are complementary, then the sum of their measure is _____ .
   (ii) If two angles are supplementary, then the sum of their measure is _____ .
   (iii) Two angles forming a linear pair are _____ .
   (iv) If two adjacent angles are supplementary, they form a _____ .
   (v) If two lines intersect at a point, then the vertically opposite angles are always ____ .
   (vi) If two lines intersect at a point, and if one pair of vertically opposite angles are acute angles, then the other pair of vertically opposite angles are _____ .

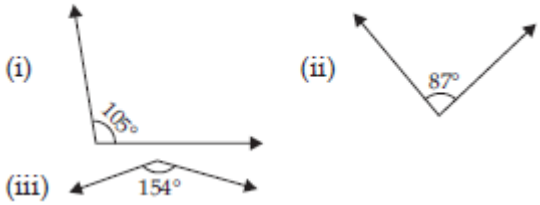
3 MARKS

1. Find the complement of each of the following angles :

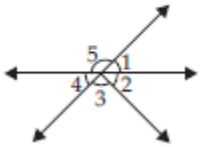


2. Find the supplement of each of the following angles:

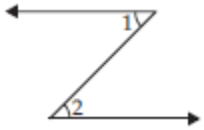
angles:



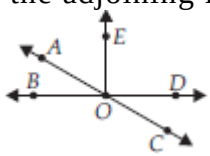
3. Find the angle which is equal to its complement.
4. Find the angle which is equal to its supplement.
5. In the given figure, ∠1 and ∠2 are supplementary angles. If ∠1 is decreased, what changes should take place in ∠2 so that both the angles still remain supplementary.
6. An angle is greater than 45°. Is its complementary angle greater than 45° or equal to 45° or less than 45°?
7. Indicate which pairs of angles are :
   (i) Vertically opposite angles.
   (ii) Linear pairs.



8. In the following figure, is ∠1 adjacent to ∠2? Give reasons.

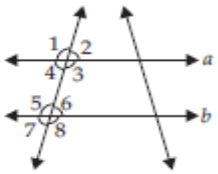


9. In the adjoining figure, name the following pairs of angles.



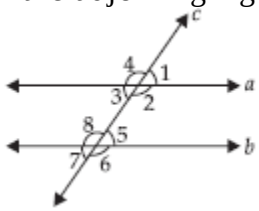
   (i) Obtuse vertically opposite angles
   (ii) Adjacent complementary angles
   (iii) Equal supplementary angles
   (iv) Unequal supplementary angles
   (v) Adjacent angles that do not form a linear pair

10. State the property that is used in each of the following statements?



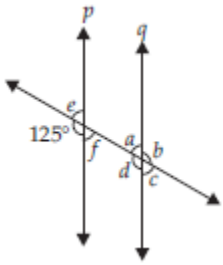
(i) If $a \| b$, then $\angle 1 = \angle 5$.
(ii) If $\angle 4 = \angle 6$, then $a \| b$.
(iii) If $\angle 4 + \angle 5 = 180°$, then $a \| b$.

11. In the adjoining figure, identify

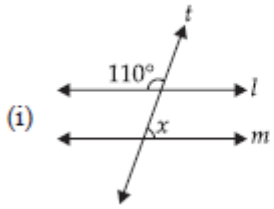


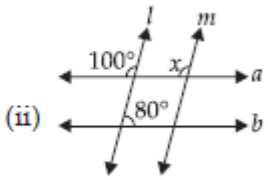
(i) the pairs of corresponding angles.
(ii) the pairs of alternate interior angles.
(iii) the pairs of interior angles on the same side of the transversal.
(iv) the vertically opposite angles.

12. In the adjoining figure,p||q. Find the unknown angles.

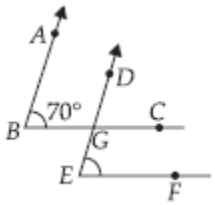


13. Find the value of x in each of the following figures if l||m.





14. In the given figure, the arms of two angles are parallel. If ∠ABC = 70°, then find



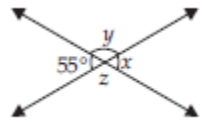
(i) ∠DGC
(ii) ∠DEF

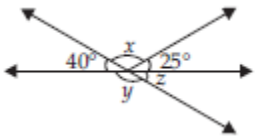
5 MARKS

1. Identify which of the following pairs of angles are complementary and which are supplementary.
   (i) 65°, 115° (ii) 63°, 27° (iii) 112°, 68°
   (iv) 130°, 50° (v) 45°, 45° (vi) 80°, 10°

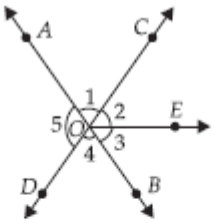
2. Can two angles be supplementary if both of them are
   (i) Acute?
   (ii) Obtuse?
   (iii) Right?

3. Find the value of the angles x, y and z in each of the following:

(i) 

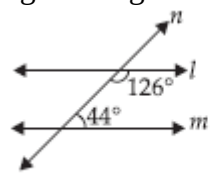
(ii) 

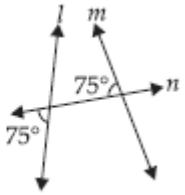
3. In the adjoining figure:

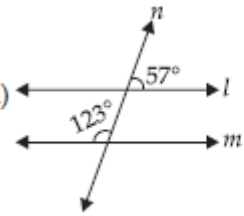


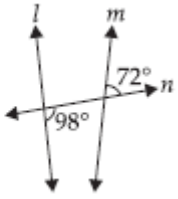
(i) Is ∠1 adjacent to ∠2?
(ii) Is ∠*AOC* adjacent to ∠*AOE*?
(iii) Do ∠*COE* and ∠*EOD* form a linear pair?
(iv) Are ∠*BOD* and ∠*DOA* supplementary?
(v) Is ∠1 vertically opposite to ∠4?
(vi) What is the vertically opposite angle of ∠5?

5. In the given figures below, decide whether l is parallel to m.

(i) 

(ii) 

(iii) 

(iv) 

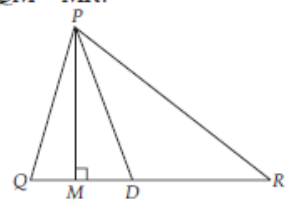
TRIANGLES AND ITS PROPERTIES

ONE MARK

1.A closed figure formed by three line segments is called a ----------.
2.The three sides and three angles of a triangle are called the six parts or ---------- of the triangle.
3.Triangles can be classified according to the lengths of their --------- and according to their ----------.
4.a triangle in which all the three sides are equal is called an----------.
5.A triangle I which any two of its sides are equal is called an ---------- triangle.
6.A triangle in which all three sides are of different lengths is called a ---------- triangle.
7.A triangle in which all the angles are less than right angle is called an ----------.
8.A triangle in which one angle is a right angle is called a----------.
9.A triangle in which one of the angle is more than right angle is called an ----------.
10.The sum of angles of a triangle is ---------.
11.If a side of a triangle is produced ,then the exterior angle so formed is equal to the sum of two ----------.
12.A line segment joining any vertex ofa triangle to the midpoint of its opposite side is called the ------- of a triangle.
13.The ---------- is the shortest distance from the vertex to the opposite side of a triangle.
14.The altitude of a triangle can also be called as ---------- of a triangle.
15.the sum of any two sides of a triangle is always greater than the ---------- .
17.The side opposite to right angle in a triangle is called its ----------.
18.The other two sides other than the hypotenuse are calld the -------- and --------- ofa right angled triangle.
19.$(\text{base})^2+(\text{height})^2$=----------, (in a right angled triangle).
20.Pythagoras theorem was formulated by ---------- named Pythagoras.

3 marks

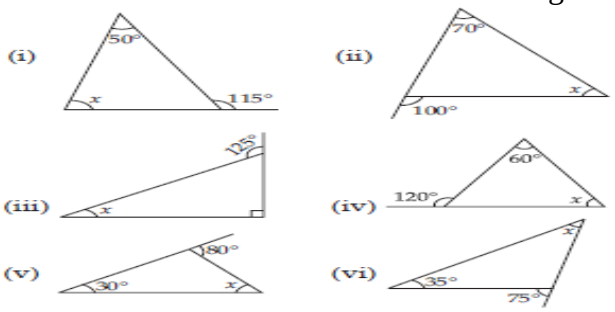
1. In ΔPQR, D is the mid-point of $\overline{QR}$.
$\overline{PM}$ is _____ .
PD is _____ .
Is $QM = MR$?



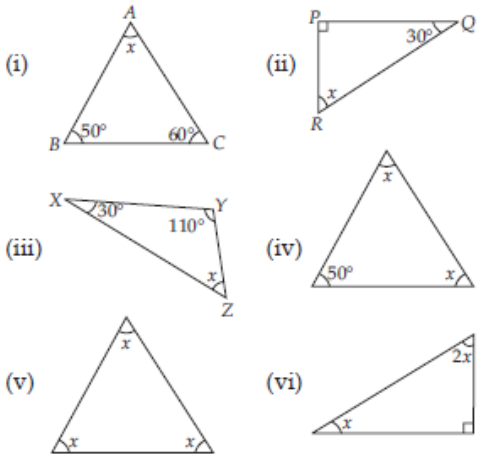
2. Draw rough sketches for the following:
   (A) In ΔABC, BE is a median.
   (B) In ΔPQR, PQ and PR are altitudes of the triangle.
   (C) In ΔXYZ, YL is an altitude in the exterior of the triangle
3.Verify by drawing a diagram, if the median and altitude of an isosceles triangle can be same.
4.Is it possible to have a triangle with the following sides?
   (i) 2 cm, 3 cm, 5 cm
   (ii) 3 cm, 6 cm, 7 cm
   (iii) 6 cm, 3 cm, 2 cm
5.The lengths of two sides of a triangle are 12 cm and 15 cm. Between what two measures should the length of the third side fall?
6.PQR is a triangle, right-angled at P. If PQ = 10 cm and PR = 24 cm, find QR.
7.ABC is a triangle, right-angled at C. If AB = 25 cm and AC = 7 cm, find BC.
8.A 15 m long ladder reached a window 12 m high from the ground on placing it against a wall at a distance a. Find the distance of the foot
9.Find the perimeter of the rectangle whose length is 40 cm and a diagonal is 41 cm.
10.The diagonals of a rhombus measure 16 cm and 30 cm. Find its perimeter.

5marks

1.Find the value of the unknown interior angle x in the following figures:

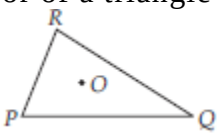


2.Find the value of the unknown x in the following diagrams:



3.Take any point O in the interior of a triangle PQR. Is

(i) $OP + OQ > PQ$?
(ii) $OQ + OR > QR$?
(iii) $OR + OP > RP$?



4.ABCD is a quadrilateral. Is AB + BC + CD + DA < 2(AC + BD)?

5.Which of the following can be the sides of a right triangle?

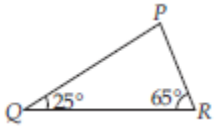
(i) 2.5 cm, 6.5 cm, 6 cm
(ii) 2 cm, 2 cm, 5 cm
(iii) 1.5 cm, 2 cm, 2.5 cm

In the case of right-angled triangles, identify the right angles.

6.A tree is broken at a height of 5 m from the ground and its top touches the ground at a distance of 12 m from the base of the tree. Find the original height of the tree.

7.Angles Q and R of a ΔPQR are 25° and 65°. Write which of the following is true:

(i) $PQ^2 + QR^2 = RP^2$
(ii) $PQ^2 + RP^2 = QR^2$
(iii) $RP^2 + QR^2 = PQ^2$



CONGRUENCE OF TRIANGLES

1 MARK

Complete the following statements:

1. Two line segments are congruent if _____ .

2.Among two congruent angles, one has a measure of 70°; the measure of the other angle is _____.

3. When we write ∠A = ∠B, we actually mean _____ .

4.If DDEF ≅ ΔBCA, write the part(s) of ΔBCA that correspond to

(i) $\angle E$ (ii) $\overline{EF}$

(iii) $\angle F$ (iv) $\overline{DF}$

3 MARKS

1.Give any THREE real-life examples for congruent shapes

2.If ΔABC ≅ ΔFED under the correspondence ABC ↔ FED, write all the corresponding congruent parts of the triangles.

3.You want to show that ΔART ≅ ΔPEN,

(A) If you have to use SSS criterion, then you need to show

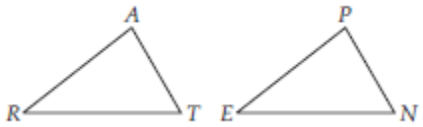
(i) AR = (ii) RT = (iii) AT =

(B) If it is given that ∠T = ∠N and you are to use SAS criterion, you need to have

(i) RT = and (ii) PN =

(C) If it given that AT = PN and you are to use ASA criterion, you need to have

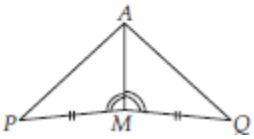
(i) ? (ii) ?



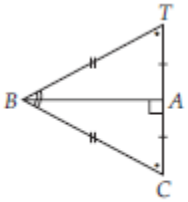
4.You have to show that ΔAMP ≅ ΔAMQ

In the following proof, supply the missing reasons.

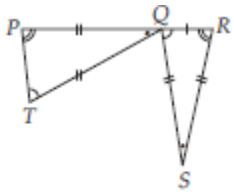
	Steps		Reasons
(i)	$PM = QM$	(i)	...
(ii)	$\angle PMA = \angle QMA$	(ii)	...
(iii)	$AM = AM$	(iii)	...
(iv)	$\Delta AMP \cong \Delta AMQ$	(iv)	...



5.Complete the congruence statement:



$\Delta BCA \cong ?$

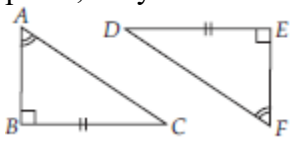


$\Delta QRS \cong ?$

6.Draw a rough sketch of two triangles such that they have five pairs of congruent parts but still the triangles are not congruent.

7.If ΔABC and ΔPQR are to be congruent, name one additional pair of corresponding parts. What criterion did you use?

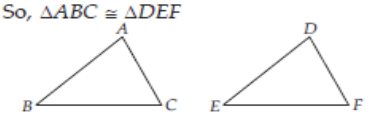
8.Explain, why ΔABC ≅ ΔFED



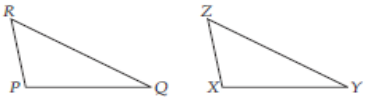
5 MARKS

1.Which congruence criterion do you use in the following?

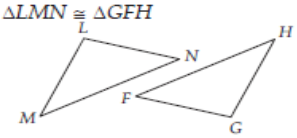
(a) Given: $AC = DF$
$AB = DE$
$BC = EF$
So, $\Delta ABC \cong \Delta DEF$



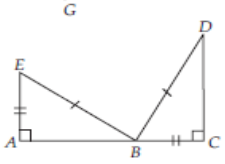
(b) Given: $ZX = RP$
$RQ = ZY$
$\angle PRQ = \angle XZY$
So, $\Delta PQR \cong \Delta XYZ$



(c) Given: $\angle MLN = \angle FGH$
$\angle NML = \angle HFG$
$ML = FG$
So, $\Delta LMN \cong \Delta GFH$



(d) Given: $EB = BD$
$AE = CB$
$\angle A = \angle C = 90°$
So, $\Delta ABE \cong \Delta CDB$



2.In a squared sheet, draw two triangles of equal areas such that
(i) the triangles are congruent.
(ii) the triangles are not congruent.
What can you say about their perimeters?

COMPARING QUANTITIES

State True or False

The ratio of

i. The ratio of Rs.10 to 100 paise is 1:1
ii. For comparing two quantities units must be same.
iii. The ratio of 30 days to 360 hours is 1 : 2
iv. The ratios which are equivalent are said to be in proportion.
v. Ratio is a method comparing two quantities by division.

Fill in the blanks :

vi. Ratio of 12 years to 12 months = _____
vii. The ratio of 500 g to 1000g = _____
viii. The ratio of 24 hours to 144 hours = _____
ix. The ratio of Re.8 to 800 paise = _____
x. The ratio of 300 ml to 3 litres = _____

Choose the correct answer :

xi. If Mohan's income is 25% more than Raman's income, then Raman's income is less than Mohan's income by (i) 25% (ii) 80% (iii) 20% (iv) 75%

xii. The ratio of Fatima's income to her savings is 4:1. The percentage of money saved by her is (i) 20% (ii) 25% (iii) 40% (iv) 80%

xiii. 250% is equal to :

i) 10 : 4 ii) 4:10 iii) 25% iv) 40%

xiv. The interest on Rs.40000 for 3 years at the rate of 15% per annum is i) Rs.81000 ii) Rs.18000 iii) Rs.22000 iv) 4000

xv. $\frac{25\% of 50\% of 100\%}{25x50}$ is equal to

i) 1.1 % ii) 0.1% iii) 0.01% iv) 1%

xvi. What percent of $\frac{2}{7}$ is $\frac{1}{35}$?

i) 25% ii) 20% iii) 15% iv) 10%

xvii. A number increase by 20% gives 42. The number is :

i) 35 ii) 28 iii) 36 iv) 30

xviii. A number decreased by 8% gives 69. The number is :

i) 80% ii) 75% iii) 85 iv) none of these.

xix. 60% of 450 = _____

i) 180 ii) 210 iii) 270 iv) None of these.

xx. If 35% of a number added to 39 is the number itself, the number is :

i) 60% ii) 65 iii) 75 iv) 105.

3 MARKS

1. If A:B = 3:4 , B:C = 5:7, find A:B:C
2. Find 6 equivalent ratios of 3:4
3. Express in simplest form :

(i) 2.5 m : 50 cm (ii) Rs.750 : 450 paise

4. Two numbers are in the ratio 7:11. If 7 is added to each of the numbers, the ratio becomes 2:3 find the numbers.
5. If x:y = 2:3, find (3x +2y) : (5x + 3y)
6. Find the mean proportional between 9 and 36.
7. If x, 42,294 are in continued proportion, find the value of x.
8. The weight of 16 bags of rice, is 240 kg, how many bags will weigh 90kg?
9. The cost of 13 toys is Rs.117. Find the cost of 10 such toys ?
10. If 25 apples cost Rs.65, what will be the cost of 45 such apples?
11. A labourer earns Rs.156 in 3 hours, how much will he earn in 7 hours?
12. If (2x+3) : (3x+2) = 5:7 , find the value of x .
13. Write the following ratios in ascending order.

4:3, 3:4, 5:8, 2:3

14. In the ratio 8:11, if the consequent is 66, what is the antecedent ?
15. The first three terms of a proportion are 517 and 35 respectively, Find the fourth term.
16. 25 workers earn Rs.1875 per day, what will be the earning of 18 workers ?

5 MARKS

1. The ages of Sonal and Manoj are in the ratio 7:5. Ten years hence, the ratio of their ages will be 9:7, find their present ages.
2. A father is 30 years older than his son. In 12 years, the man will be 3 times as old as his son . Find their present ages.
3. A man sold an article for Rs.495 and gained 10% on it. Find the cost price of the article.
4. A) Two complementary angles differ by 8˚ Find the angles.

B) Two supplementary angles differ by 44˚. Find the angles.

5. After 12 years Manoj will be 3 times as old as he was 4 years ago. Find his present age.
6. A number consists of two digits whose sum is 8. If 18 is added to the number its digits are reversed. Find the number.
7. The length of a rectangular field is twice its breadth. If the perimeter of the field is 150m, find its length and breadth.
8. The total cost of 3 tables and two chairs is Rs.1850. If a table costs Rs.75 more than a chair, find the price of each.
9. Two equal sides of a triangle are each 5 meters less than the twice the third side . If the perimeter of the triangle is 55 meters, find the length of the sides.
10. In an examination, a student requires 40% of the total marks to pass. If Rupa gets 185 marks and fails by 15 marks, find the total marks.

RATIONAL NUMBERS

1.Which of these properties hold false for Multiplication of rational numbers?

A. Associative law
B.Closure law
C.Commutative law
D. Existence of Multiplicative identity
E. None of the these

Find the below multiplication

2.$-12\times910-12\times910$
3.$-259\times13-259\times13$
4.$724\times10724\times10$

Find the following

5. $(1/2)^{-1}$
6.$(3)^{-1}$
7.$(-6)^{-1}$
8.$(1/-2)^{-1}$
9.The product of two rational number is 2 , if one of the rational number is 1/7 ,what is the value of other?

10.Fill in the blanks

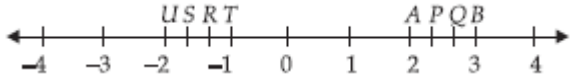
(i) ____ ÷ (-3)= (-4/15)
(ii) The numbers _____ and _____ are their own reciprocals
(iii) The reciprocal of 1 is _____.
(iv) (1/2) ÷ (2/3) =_____.
(v) The product of two rational numbers is always a _____.
(vi) The reciprocal of a negative rational number is _____.

11.Write five rational numbers which are smaller than 5

12.Find five rational numbers between (1) and 2

3 MARKS

1.The points P, Q, R, S, T, U, A and B on the number line are such that, TR = RS = SU and AP = PQ = QB. Name the rational numbers represented by P, Q, R and S.



2. Rewrite the following rational numbers in the simplest form:

(i) $\frac{-8}{6}$ (ii) $\frac{25}{45}$ (iii) $\frac{-44}{72}$ (iv) $\frac{-8}{10}$

3. Write the following rational numbers in ascending order:

(i) $\frac{-3}{5}, \frac{-2}{5}, \frac{-1}{5}$ (ii) $\frac{-1}{3}, \frac{-2}{9}, \frac{-4}{3}$

(iii) $\frac{-3}{7}, \frac{-3}{2}, \frac{-3}{4}$

4. Find the product:

(i) $\frac{9}{2} \times \left(\frac{-7}{4}\right)$ (ii) $\frac{3}{10} \times (-9)$

(iii) $\frac{-6}{5} \times \frac{9}{11}$ (iv) $\frac{3}{7} \times \left(\frac{-2}{5}\right)$

(v) $\frac{3}{11} \times \frac{2}{5}$ (vi) $\frac{3}{-5} \times \frac{-5}{3}$

5 MARKS

1. List five rational numbers between:
   (i) –1 and 0
   (ii) –2 and –1
   (iii) -4/5 and -2/3
   (iv) 1/2 and 2/3

2. Write four more rational numbers in each of the following patterns:

(i) $\frac{-3}{5}, \frac{-6}{10}, \frac{-9}{15}, \frac{-12}{20}, \ldots$

(ii) $\frac{-1}{4}, \frac{-2}{8}, \frac{-3}{12}, \ldots$

(iii) $\frac{-1}{6}, \frac{2}{-12}, \frac{3}{-18}, \frac{4}{-24}, \ldots$

(iv) $\frac{-2}{3}, \frac{2}{-3}, \frac{4}{-6}, \frac{6}{-9}, \ldots$

3. Give four rational numbers equivalent to:
   (i) -2/7 (ii) 5/-3 (iii) 4/9

4. Draw the number line and represent the following rational numbers on it:
   (i) 3/4 (ii) -5/8 (iii) -7/4 (iv) 7/8

5. Which of the following pairs represent the same rational number?

(i) $\frac{-7}{21}$ and $\frac{3}{9}$ (ii) $\frac{-16}{20}$ and $\frac{20}{-25}$

(iii) $\frac{-2}{-3}$ and $\frac{2}{3}$ (iv) $\frac{-3}{5}$ and $\frac{-12}{20}$

(v) $\frac{8}{-5}$ and $\frac{-24}{15}$ (vi) $\frac{1}{3}$ and $\frac{-1}{9}$

(vii) $\frac{-5}{-9}$ and $\frac{5}{-9}$

6. Fill in the boxes with the correct symbol out of >, < and =.

(i) $\frac{-5}{7}\square\frac{2}{3}$ (ii) $\frac{-4}{5}\square\frac{-5}{7}$

(iii) $\frac{-7}{8}\square\frac{14}{-16}$ (iv) $\frac{-8}{5}\square\frac{-7}{4}$

(v) $\frac{1}{-3}\square\frac{-1}{4}$ (vi) $\frac{5}{-11}\square\frac{-5}{11}$

(vii) $0\square\frac{-7}{6}$

7. Which is greater in each of the following:

(i) $\frac{2}{3},\frac{5}{2}$ (ii) $\frac{-5}{6},\frac{-4}{3}$

(iii) $\frac{-3}{4},\frac{2}{-3}$ (iv) $\frac{-1}{4},\frac{1}{4}$

(v) $-3\frac{2}{7},-3\frac{4}{5}$

8. Find the sum:

(i) $\frac{5}{4}+\left(\frac{-11}{4}\right)$ (ii) $\frac{5}{3}+\frac{3}{5}$

(iii) $\frac{-9}{10}+\frac{22}{15}$ (iv) $\frac{-3}{-11}+\frac{5}{9}$

(v) $\frac{-8}{19}+\frac{(-2)}{57}$ (vi) $\frac{-2}{3}+0$

(vii) $-2\frac{1}{3}+4\frac{3}{5}$

9. Find

(i) $\frac{7}{24}-\frac{17}{36}$ (ii) $\frac{5}{63}-\left(\frac{-6}{21}\right)$

(iii) $\frac{-6}{13}-\left(\frac{-7}{15}\right)$ (iv) $\frac{-3}{8}-\frac{7}{11}$

(v) $-2\frac{1}{9}-6$

10 Find the value of:

(i) $(-4)+\frac{2}{3}$ (ii) $\frac{-3}{5}+2$

(iii) $\frac{-4}{5}+(-3)$ (iv) $\frac{-1}{8}+\frac{3}{4}$

(v) $\frac{-2}{13}+\frac{1}{7}$ (vi) $\frac{-7}{12}+\left(\frac{-2}{13}\right)$

(vii) $\frac{3}{13}+\left(\frac{-4}{65}\right)$

CONSTRUCTION

3 MARKS

1. Construct 30º with compass & ruler.
2. Construct 60 º with compass & ruler.
3. Construct 75 º with compass & ruler.
4. Construct 90 º with compass & ruler.
5. Construct 15 º with compass & ruler.

5 MARKS

1. Construct a triangle whose sides are AB= 5.2cm, BC=6.5cm, CA=7.3cm.
2. Construct an equilateral triangle of side 5.5cm.
3. Construct a triangle with sides PQ=4cm QR=3.6cm, PR=4cm.
4. Construct a triangle ABC with AB-5.1cm, AC=4.8cm,
5. Construct a triangle PQR with PQ=5cm, .
6. Construct a triangle ABC with BC=5.6 cm, .
7. Construct a triangle ABC with BC=3.9cm, and **hypo…..** AC=5cm.
8. Construct an isosceles right angled triangle ABC with BC = AC = 3 cm and , .
9. Construct an equilateral triangle whose each side measures 5.8 cm measure each of its angle.

PERIMETER AND AREA

1 MARK

FILL IN THE BLANKS

1. Perimeter of a square = ----------.
2. Perimeter of a rectangle = ----------.
3. Perimeter of a parallelogram = ----------.
4. Circumference of a circle = ----------.
5. Circumference of circle =----------.
6. Area of a square = ----------.
7. Area of a rectangle = ----------.
8. Area of a triangle = ----------.
9. Area of circle = ----------.
10. Area of a parallelogram = ----------.
11. Perimeter of a triangle whose sides are 80m , 78m and 61m = ----------
12. Perimeter of a rectangle with length 40cm and breadth 30cm = ----------

13. Perimeter of a circle with redius 7cm = ----------
14. Perimeter of a square whose side is 20 cm = ----------
15. Perimeter of a parallelogram with adjacent sides 2cm and 3cm = ----------
16. Area of a rectangle of length 7cm and breadth 6cm = ----------
17. Area of a parallelogram with base 2cm and height 8cm = ----------
18. Area of a square whose side is 4m = ----------
19. Area of a circle whose redius is 7cm = ----------
20. Area of a triangle whose base is 7cm and height is 14cm = ----------

3 MARKS

1. Find the value of x, if length of a rectangle = 3x, breadth = x and perimeter = 48 units.
2. A wire of length 132 cm is ……in the form of circle. Find the radius of the circle so formed.
3. The perimeter of a rectangular sheet of paper is 108cm. Find its length if its breadth is 20cm.
4. A gardener needs to fence a circular garden of radius 28cm. Find the length of the fence required.
5. Find the diameter of the circle whose circumference is 22cm.
6. Find the circumference of a semicircle whose radius is 14 cm.
7. Find the perimeter of rectangle whose breadth is 30 cm and length is 35cm.
8. Find the area of a rectangle whose length is 35cm and breadth is 30cm.
9. Find the side of an equilateral triangle if side = x-2 and perimeter = 15 units.
10. If the four sides of a rectangle are x-2, 2x-3, x-2, 2x-3 and perimeter = 8 units, find the value of x.
11. Find the area of a triangle whose base is 4cm and height is 3 cm.
12. Find the area of a triangle whose base is 5cm and height is 3.2 cm
13. A circular garden has area 314cm. Find its radius.
14. The circumference of a circular field is 352m. Find its radius.
15. If the base and height of a parallelogram are 7cm and 4cm respectively. Find its area.
16. In a parallelogram, base = 2.5cm, height = 3.5cm Find its area.
17. Find the area of a circle with radius 3.5cm.
18. Find the area of a rectangular park is 3600 m2. If its length is 90m, find its breadth.
19. Find the area of a circle with radius 42cm.
20. Perimeter of a rectangle with length 40cm and breadth 22cm is same as perimeter of square. Find the side of the square.

5 MARKS

1. Shiksha tied her pet dog with a 10m rope to a pole in the garden. The dog started to take circular rounds around the pole with straight rope. Find the distance covered by the dog in 50 rounds. (take $\pi = 3.14$)
2. Find the number of revolution taken by the wheel of truck to cover a distance of 78.5 km if the distance of the wheel is 1m.
3. Find the distance covered a tyre of a car of radius 28cm in1000 revolutions.
4. A wire is in shape of a circle of radius 28cm and is rebent to form a square. Find the side of the square so formed. (take $\pi = 3.14$)
5. Find the cost of wooden strip required to frame a photograph of dimensions 80 cm x 50 cm if the3 cost of the wooden strip is ….. 10 per metre.
6. A circular flower bed is surrounded by a path 4m wide. The diameter of the flower bed is 66m. What is the area of the path (take $\pi = 3.14$)
7. Δ ABC is an isosceles triangle with AB = AC = 7.5 cm and BC = 9 cm. The height AD from A to BC, is 6cm. Find the area of Δ ABC.
8. Find the area enclosed between two concentric circles of radii 2.8cm and 1.2cm.
9. A rectangular park is 40m long and 25m wide. A path 2.5m wide is constructed outside and around the park. Find the area of the path.
10. Through a rectangular garden of length 70m and breadth 40m, two cross pavements are made which cut each other at right angles and are parallel to the sides of the rectangular garden. If the width of each pavement is 2m, find the area of the pavements and the area of the garden excluding the pavements.

ALGEBRAIC EXPRESSIONS

1. A symbol having fixed numerical value is called a _____.
2. 3xy and 4yx are pair of _____ terms.
3. Expressions having one term is called _____.
4. Terms of the expression $9x^{2-4xy}$ are _____ and _____.
5. Twice the sum of numbers x and y = _____.
6. The square of x of subtracted from square of y = _____.
7. The product of numbers x and y is divided by 5 = _____.
8. The number x divided by 2 = _____.
9. The value of x-6 when x =2 is _____.
10. The value of $a^{3+}b^{3.}$ when a=1, b= -1 = _____.
11. When x=13, find the value of 3x +1.
12. When n=20, find the value of 3n+1.
13. How many dots are required to frame a triangle?
14. Find the value of p in $2x^2$ - px+ 4 if x=1.
15. If y=3, p= -1, q= -2, find the value of y^3 - 5 – y +11.
16. IF p= -2 and q = 5, then the value of 10-3Q-16-15p = _____.
17. a = -7, b = -7, find the value of $a^3 – b^{3.}$
18. If A = and
19. If x =1, then the value of $2x^2$ – px+4 is _____.
20. If a = -1, then the value of is _____.

3 MARKS

1. Write the numerical coefficient of x^2 in a) x^2 –x+4 b) x^2y +y c) x^3 -2 x^2+3x.
2. Write an algeberain expression. :

1. Sum of x , x^2 and x3
2. Difference of x^2 and y^2
3. Sum of p times x and y.

3. Add the following expressions :

a. x^2 -7xy- y^2 and 2 x^2 – 2xy+7 y^2 b) xy+yz+xa and -yz-3x-xy.

4. By how much is y^4 – 12 y^2 + y + 14 greater than 17 y^{3+34} y^2 - 51y + 68 ?
5. Find the value of if a =2 and b = -3.
6. Nisha has a square plot of side xm and another square plot with side ym. What is the sum of perimeters of both the plots ?
7. If x : y : : 1 : 2 , then find the value of .
8. Find the perimeter of a rectangle if its length is 7x – 2y and breadth is 7 (x+y).
9. Substract x-y +3z from 2z – x – 3y.
10. Substract the sum of 8a – $6a^2$ + 9 and – 10a – 8 + $8a^2$ from -3.
11. Add : 5 x^2 – 7x + 3, -8x^2 + 2x – 5, 7x^2 – x -2.
12. Substract : 2 x^2 – 5x +7 from 3 x^2 + 4x – 6.
13. Add : a. 5x, 7x, -6x
    b. 3xy, - 7xy, 4 xy.
    c. 5 a^2b, - 8 a^2b , 7 a^2b.
14. Find the product :

Multiply : $\frac{-2}{3}$ a^2b and $\frac{6}{5}a^3b^2$ and find the value of the product if a = 2, b = 3.

i. Find the value of $(\frac{-8}{21}\ x^2y^3\ x\ \frac{-7}{16}\ xy^2)$ if x = 3, y = 2.

ii. Simplify : 4 st (s – t) – 6 s^2 ($t – t^2$) – 3t^2 (2s^2 – s) + 2st (s – t).

iii. Find the product s (s^2 – st) and find its value of it if s=2 and t=3.
iv. Find the product of -3y (xy+y2) and find its value for x = 4 and y = 5.
v. Find the product ab ($a^2 + b^2$) and evaluate it for a =2 and b = ½

5 MARKS

1. Simplify :
   ($3x^2$ + 5x -7) (x-1) – (x^2 -2x +3) (x+4)
2. Simplify : (2x + 5y) (3x+4y) – (7x+3y) (2x+y)
3. Find the value of 24 x^2 (1-2x) and evaluate it if x= -7.
4. Find the value of ($2.3a^5b^2$) x ($1.2a^2b^2$), when a = 1 and 6 = o.5
5. Find the value of ($-8u^2v^6$) x (-20av) for u = 2.5 and v = 1.
6. Subtract the sum of 8m – 7n + $6p^2$ and –m-n-p^2.
7. Subtract the sum of 8a – $6a^2$ +9 and -10a -8+a^2 from -3.
8. Find the product -3y(xy+y^2) and find its value for x=4, y=5.
9. Find the products :

a. $10a^2$ (0.1a – 0.5b)
b. 1.5a ($10a^2b$ – $100ab^2$)

10. Find the product of :

a. $\frac{-4}{27}$ xyz ($\frac{9}{2}$ x^2yz - $\frac{3}{4}$ xyz^2)

b. ($\frac{4}{3}$ x^2yz) x ($\frac{1}{3}$ $y^2$3x) x (-6 xyz^2)

EXPONENTS & POWERS

1 MARK

I. Fill in the blanks :

1. a^m x a^n = _____
2. a^m / a^n = _____
3. $(a^m)^n$ = _____
4. a^m x b^m = _____
5. a^m / b^m = _____
6. a^0 = _____
7. a^{-m} = _____
8. 3^5 x 3^2 = _____
9. 2^3 x 2^5 = _____
10. 2^8 / 2^5 = _____
11. 2^{12} / 2^{10} = _____
12. 2^5 / 2^7 = _____
13. (5^2)^3 = _____
14. $(5^2)^{-5}$ = _____
15. 2^3 7^3 = _____
16. 3^5 4^5 = _____
17. 2^{-3} 3^{-3} = _____
18. 3^4 x 5^4 = _____
19. 2^{-5} x 3^{-5} = _____
20. 3^{-15} = _____

3 MARKS

1. Find the value of a) 2^7 b) 7^3 c) 11^3
2. Express in exponential form :

a. X x Xx Xx Xx X

b. a x a x c x c x c x d x d

c. 3 x 3 x 3 x b x b x b

3. Express in exponential form: 1024
4. Express in powers of prime factors : 2025
5. Simplify : a) 2 x 10^4 b) 2^8 x 5
6. Simplify : a) $(-3)^4$ b) $(-3)^2$ x $(-2)^3$
7. To what power should (-2) be raised to get 64?
8. Express the following in exponential notation :

$$\frac{(-5)x(-5)x(-5)x(-5)x(-5)x(-5)x(-5)}{9x9x9x9x9}$$

9. Express the following rotational numbers in exponential notation:

$$\frac{512}{729}$$

10. Simplify & express each of the following in exponential form :

a) 2^0 x 3^0 x 4^0 b. 7^5 x a^8b c) 7^5 x a^5b^2

11. Simplify :

$$\frac{(3)x5x5-6}{59x(32)4}$$

12. Determine the value of x :

$\{(3)^3\}^7 = 3^{7x}$

13. $(⅔)^{26}$ $(⅔)^{22} = (⅔)^x$
14. Simplify : $((⅔)^{-1}$ $(-5/2)^{-1}\}^{-1}$
15. Find the value of 13^3
16. Compare $(-3)^5$ and $(-5)^3$
17. Determine the value of x in :

$(⅔)^3$ x $(⅔)^{-6} = (⅔)^{2x-1}$

18. Simplify : $(-3)^6$ x $(-2)^3$ x $(-5)^2$
19. Write down the base and exponents :

a. 2^5 b) 13^8 c) 25^3

20. $(200)^0 = 5^n$, then find the value of n.

5 MARKS

1. Simplify : a) 3^5 x 10^5 x 25

b) 25 x 5^2 x 6^9

2. Simplify : $\{((3/17)^{11}$ x $(3/17)^7\}$ $\{(3/17)^8$ x $(3/17)^{10}\}$ and express the result as power of 10.
3. The speed of an aeroplane is 1,240 km per hour. Find the distance covered by the airplane in 3 hours and 20 minutes. Also express the distance in scientific notation.
4. The mass of a particle is 3.84 x 10^{17} grams. Find the mass pf a [artoc;e 5,000 times bigger than it.
5. Compare the following numbers.

a) 1.7 x 10^{12} , 8.5 x 10^8 b) 9.8 x 10^5 , 1.3 x 10^6

6. Write the following in expanded form.

a) 3,56,7860 b) 46,00,349

7. Express in standard form.
   a) 2,00,000 b) 2,18,45,00,000 c) 39,087.8 d) 1908.781 e) 500,000,000,000

8. Find the number from expanded form :
   a) $8 \times 10^5 + 7\times10^2 + 5\times10^0$ b) $5\times0^5 + 5\times10^1 \times 5\times10^0$
   c) $3\times10^4 + 6\times10^3 + 0\times10^2 + 4\times10^1 + 5\times10^0$ d) $8\times10^5 + 7\times10^3 + 5\times10^0$
   e) $5\times10^5 + 5\times10^3 + 5\times10^2 + 5\times10^0$
9. The speed of light is 300,000,000 metres per second. The speed of a robot is 15 metres per second. How many times faster is the speed of lighter than the robot?
10. The density of an element is related to its weight. Light element like oxygen has the density of 0.001332 . Find the density of oxygen in standard form.

SYMMETRY

1 MARK

FILL IN THE BLANKS

1. The line of symmetry is also known as _____
2. If there is a line about which the figure may be folded so that two parts of figure will coincide, then the line so formed by folding the figure is called _____
3. The number of line(s) of symmetry for a line segment is _____
4. Isosceles triangle has _____ lines of symmetry.
5. For a kite , the line of symmetry is along _____
6. Rectangle has _____ lines of symmetry.
7. Rhombus has _____ lines of symmetry.
8. Isosceles triangle has _____ line of symmetry.
9. A square has _____ line of symmetry.
10. Equilateral triangle has _____ line of symmetry.
11. Number of lines of a circle is _____
12. A semicircle has _____ line of symmetry.
13. For a regular pentagon the number of lines of symmetry is _____
14. A regular hexagon has _____ axis of symmetry.
15. List 4 alphabets with only vertical line of symmetry.
16. List 4 alphabets with only horizontal line of symmetry.
17. List 3 alphabets with both vertical & horizontal line of symmetry.
18. Name two shapes with two lines of symmetry.
19. The alphabet 'S' has _____ angle of rotation.
20. The alphabet 'N' has _____angle of rotation.

VISUALISING SOLID SHAPES

1 MARK

Choose the correct answer :

1. How many number of vertices does a cone has?
a. 1b. 3 c. 2 d. None of these.
2. How many number of faces does a solid sphere has ?
a. 1b. 2 c. Many d. None.
3. How many number of faces does a hemisphere has ?
a. 1 b. 2 c. Many d. None of these.
4. Which of the following is a triangular pyramid having all the faces as equilateral triangle?
a. Rectangular Pyramid b. Square Pyramid c. Tetrahedron d. None of these.

5. Which of the following is the number of vertices of sphere ?
   a. 0 b.1 c. 2 d. 4
6. Which of the following can be other name of a cylinder ?
   a. A triangular prism b. A rectangular prism c. A vertical prism d. A circular prism.
7. If F, E and V represent the faces, edges and vertices respectively of a polyhedral, then which of the following is Euler's formula ?

a. F-V+E = 2 b. F+V+E = 2 c. F+V-E = 2 d. F+V = 2-E.

8. Which of the following is the base of a tetrahedron ?

a. A square b. A rectangle c. A circle d. A triangle.

9. Which of the following is the other name of a cube ?
   a. A tetrahedron b. A regular hexahedron c. A square antiprism d. A cubictanedron
10. The circle, the square, the quadrilateral and the triangle are examples of :
    a. plane figures b. rectangular figures c. circular figures d. irregular figures.

FILL IN THE BLANKS

11. Plane figures are -------- dimensional
12. Solid shapes are ---------- dimensional
13. The corners of solid shapes are ----------.
14. The line segments of solid shapes in its skeleton are ----------.
15. The flat surfaces in solid shapes are ----------.
16. A ---------- is a skeleton – outline of a solid that can be folded to make it.
17. A same solid can have ---------- types of nets.
18. A ---------- sketch does not have lengths.
19. A _____ sketch is drawn on an isometric dot paper.
20. Different sections of a 3-D shape can be viewed by observing _____ .

PROBABALITY

ONE MARK

1. Each time an experience is performed is ----------
2. A part or whole of a sample space is called ----------
3. Find the probability a rupee worth 100 paise.
4. Find the probability that May month has 31 days.
5. Find the probability that a cat giving birth of a lion.
6. Find the probability of getting an odd number when a die is thrown once.
7. Find the outcomes of sample space when a coin is tossed.
8. Find the probability of getting a tail when a coin is tossed.
9. Find the probability of getting a head when a coin is tossed.
10. Probability = ----------
11. From a well shuffled deck of 52 cards, a card is drawn at random. The probability of drawing a spade is ---------.
12. A bag contains 10 marbles of which 8 are red. One marble is drawn at random. The probability that it is not red is ----------.
13. If a letter is taken out from a bag containing letters of the word SNAKE , the probability of picking A is ----------.
14. If a slip of paper is drawn from a jar containing 12 slips with different months of the year written on it, then the probability of the month starting with letter 'J' is ----------.
15. If a card is drawn from a well-shuffled deck of 52 playing cards, the probability of it being both red and black is ----------.
16. If a die is thrown once, the sample space not having equally likely outcome is ----------
17. The probability that it will rain tomorrow is 80%. The probability that it will not rain tomorrow is ------.

18. The probability of 1 girl in a family of 2 children is ----------
19. Two dice are thrown simultaneously. The number of outcomes having exactly one even number is ……
20. Probability of an …… event is O.
21. A list of all possible outcomes of an experiment is called a ……..
22. If a coin is flipped to decide which of the two teams starts the game, the probability of your team starting the game is ……
23. If an experiment of throwing a fair die once, the sum of probabilities of all distinct outcomes in the sample space is ……
24. Theoretical probabilities are based on the assumption that comes are ……..
25. A pair of dice is rolled once, the probability of obtaining 10 as a sum is …….
26. An …… is a subset of a sample space .
27. An ……. is a subset of a sample space.
28. A fair game is one in which the chances of winning or losing are ……..
29. If letters of the word RAMANUJAN are put in a box and one letter is taken out at random, the probability of drawing A is …….
30. A bag contains 2 red and 2 green balls. Tanvi draws a red ball which is not put back. The probability that Vani also draws a red ball is ……..

3 MARKS

31. A die is thrown once. Find the probability of getting the following numbers on the die :
(a) P (1) (b) P (number less than 7)
32. A die is thrown once. Find the probability of getting the following numbers on the die.
(a) P (even number)
(b) P (A number greater than 6)
(c) P (Prime number)
33. A box contains 5 red and 7 white marbles. A marble is drawn at random from the box.Find the probability that it will be a (a) Red marble (b) White marble
34. Find the probabilities of the following events.
The sum of two odd numbers is even
Drawing a red card from a well-shuffled deck of playing cards.
Getting an odd number when a die is thrown once.
35. A box contains 3 red balls, 7 black balls, 5 green balls . One ball is drawn from the box at random. Find the probability of drawing a :
(a) Green ball (b) black or red ball (c) ball that is not black.
36. A box contains 13 red balls, 17 black balls and 15 green balls. One ball is drawn from the box at random. Find the probability of drawing a :
a) green ball b) black or red ball c) ball that is not black.
37. A card is drawn from a well-shuffled deck of 52 cards. Find the probabilities of each of the following :
(a) A black card (b) A King.
38. A card is drawn from a well-shuffled deck of 52 cards. Find the probabilities of each of the following:
(a) Not a spade b) an ace c) an ace of spade.
39. (a) probability can be expressed in the form of P(E) = ----------
(b)A coin is tossed once. What is the probability of getting a head?
40. Find the probability of getting a red marble from a bag containing 8 red marbles and 2 black marbles.