APEX PON VIDYASHRAM, VELACHERY (2017 – 18)

HALF-YEARLY – WORKSHEET 1

CLASS: VIII **MATHEMATICS**

LINEAR EQUATIONS IN ONE VARIABLE

SECTION A

1. The solution of the equation $8x + 6 = 5(x - 2)$ is _____.
2. Solution of the equation $7y = 14$ is_____.
3. The value of x in the equation $8(x + 40) = 1.5(2x + 8)$ is _____.
4. If $3(x + 1) = 12$ then the value of x is _____.
5. The number that should be added to $\frac{-14}{3}$ to get $\frac{3}{7}$ is _____.

SECTION B

1. The sum of three consecutive odd numbers is 63. Find the numbers.
2. Rohan has three more five rupee notes than ten rupee notes. If has ₹195 in total, how notes of each kind he has?
3. Divide 72 toffees into two parts such that the larger exceeds the smaller part by 12. Find both the parts.
4. One fourth of a number is 8 more than 5. Find the number.
5. Simplify and solve the equation $\frac{7y-2}{5y-1}=\frac{3+7y}{4+5y}$.

SECTION C

1. The width of Sudha's garden is $\frac{2}{3}$ of its length. If its perimeter is 40 m find its dimensions.
2. Vedant got an increase of 10% in his salary. If the salary after the increase was ₹84500, find his salary before the increase.
3. Solve the equation $\frac{2}{3}(4x-1)-(4x-\frac{1-3x}{2}=\frac{x-7}{2}$
4. Simplify $\frac{4p-2}{4}-\frac{2p+5}{2}+\frac{2}{3}=p$
5. Half of the group of the children are playing in the park. Three fourth of the remaining are busy in studies. The rest 9 are doing yoga. Find the number of children in the group.

SECTION D

1. Solve for x : $\frac{7x+14}{3} - \frac{17-3x}{5} = 6x - \frac{4x+2}{3} - 5$
2. The denominator of a rational number is greater than its numerator by 12. If the numerator is increased by 7 and the denominator by 1, the number obtained is $\frac{3}{5}$. Find the rational number.
3. Karan is 24 years old than Rakesh. 10 years back Karan's age was five times the age of Rakesh. Find their ages.
4. Sum of two digits of a two digit number is 9. The number obtained by reversing the digits exceeds the original number by 27. Find the numbers.
5. Solve and check your answer for the following equations (i) $\frac{3x+5}{2x+7} = 4$ (ii) $\frac{2y+5}{y+4} = 1$

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APEX PON VIDYASHRAM, VELACHERY (2017 – 18)

HALF-YEARLY – WORKSHEET 2

CLASS: VIII **MATHEMATICS**

ALGEBRAIC EXPRESSIONS

SECTION A

1. Evaluate $(x + 5)(x + 3)$.
2. Find the value of $(82)^2 - (18)^2$.
3. If $(a - b) = 7$ and $ab = 9$ then find the value of $(a^2 + b^2)$.
4. Find the value of $(-1.4\ a^2b) \times (-0.5\ abc^2)$.
5. Simplify $(2t^2 - 3t + 1) - (8t^2 - 2t + 1)$.

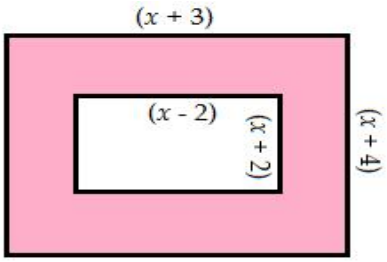
SECTION B

1. Add $4x^2 - 5xy + 3y^2$, $8y^2 + 7xy - 6x^2$ and $-2x^2 - 9xy - 13y^2$
2. Subtract $2x^2 - 5x + 10$ from $5x^2 - 11x + 19$
3. If $(x + 4)(x + 1) - (x - 1)(x - 2) = 0$, what is the value of x?
4. Simplify (i) $(x^2 – a^2)(x – a)$ (ii) $(x + 6)(x - 6)$
5. Simplify (i) 18×22 (ii) (103×106)

SECTION C

1. Two adjacent side of a rectangle are $(3x^2 - 5y^2)$ and $7x^2 - xy$. Find its perimeter and area.
2. Simplify: $xy^2(-2x)(3xy)(-4x^2y) - (\frac{1}{8}x^2)(-24xy)(\frac{4}{5}x^2)(15y^3)$
3. Evaluate the product $mn(m^2 + n^2)$ for $m = 2$ and $n = 0.1$.
4. If $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = \frac{10}{3}$ then find xy. [Hint: Square on both sides]
5. Simplify $1.62 \times 1.62 – 0.38 \times 0.38$.

SECTION D



1. If $(x + 4)(x + 1) - (x - 1)(x - 2) = 0$, what is the value of x?
2. The given figure shows photography with a wooden frame surrounding it. Write a polynomial that represents the area of the wooden frame.
3. Find the product of $(x + \frac{2}{7}x^2)$ and $(7x - x^2)$ and verify the result for $x = -2$.
4. If $(ax^3 + 2)^2 = a^2x^6 + x^3 + 4$ then find a.
5. Find the value of $\frac{(6.4)(6.4) - (5.4)(5.4)}{(8.9)(8.9) + (8.9) \times (2.2) + (1.1)(1.1)}$

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APEX PON VIDYASHRAM, VELACHERY (2017 – 18)

HALF-YEARLY – WORKSHEET 3

CLASS: VIII **MATHEMATICS**

FACTORISATION

SECTION A

1. Highest common factor of $120x^2$, $96xy$ and $108xy^2$ is _____
2. On factorising $10xy(16x^2 - 9y^2)$, we get _____
3. Factorisation of $a^2 + bc + ab + ac$ = _____
4. $xy(z^2 + 1) + z(x^2 + y^2)$ can be factorised as _____
5. For what value of c the factors of $(x^2 - cx + \frac{81}{16})$ are the same?

SECTION B

1. Regrouping the following terms and factorise (i) $x^2 + xy + 8x + 8y$ (ii) $10mn + 4m + 5n + 2$
2. Factorise $12x^5 - 108x^3$
3. Find the highest common factor of (i) $12x^2$ and $16y^3$ (ii) $90a^2bc$ and $81bc$
4. Divide $(x^2 + 7x + 10)$ by $(x + 5)$
5. Simplify (i) $\frac{5x^2y^2}{5xy}$ (ii) $\frac{(72y^6 + 8y^4)}{8y^3}$

SECTION C

1. The cost of $7z$ metres cloth is ₹ $(14z^2 + 21z^3)$. Find the cost of 1 metre of cloth.

2. Factorise $25(x + y)^2 - 36(x - 2y)^2$

3. Factorise (i) $2x^2 - 17x - 30$ (ii) $28 - 31x - 5x^2$

4. Factorise $9x - 6x^2 + x^3 - 2$ by $(x - 2)$.

5. Factorise (i) $9m^2 + 24m + 16$ (ii) $z^2 + z + \frac{1}{4}$

SECTION D

1. Factorise $ab(x^2 + y^2) - xy(a^2 + b^2)$

2. Simplify $\frac{(x - 1)(x - 2)(x^2 - 9x + 14)}{(x - 7)(x^2 - 3x + 2)}$

3. Factorise $18a^3b^3c - 12abc + 24ab^2c^2$ and divide it by $6abc$.

4. Factorise (i) $15x^2 - 26x + 8$ (ii) $6x^2 + 7x - 3$

5. Evaluate (i) $\{ (405)^2 - (395)^2 \}$ (ii) $\{ (7.8)^2 - (2.2)^2 \}$

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APEX PON VIDYASHRAM, VELACHERY (2017 – 18)

HALF-YEARLY – WORKSHEET 4

CLASS: VIII **MATHEMATICS**

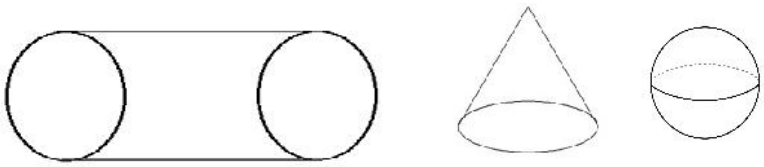
VISUALIZING SOLID SHAPES

SECTION A

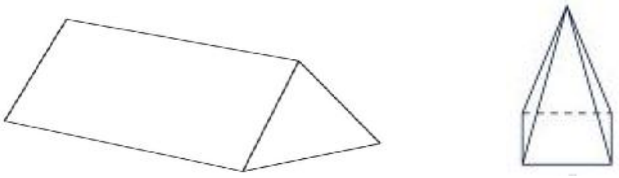
1. A pyramid is named according to its _____
2. The common name of a square prism is _____
3. A solid figure with only one vertex is _____
4. If a pyramid has nine faces, it has _____
5. A hexagonal prism has _____ edges.

SECTION B

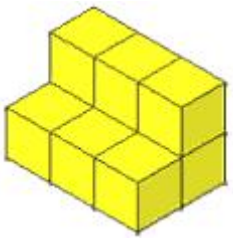
1. Draw 2 solid shapes which have side view and name the shape.
2. Manya is building prism using straws and balls of clays. How many straws does she need to build a pentagonal prism? And also draw the pentagonal prism.
3. Write the names of the following shapes and also give one example of each. Find the number of faces, edges and vertices of each shape.



4. Draw nets for the following solids and also name them.

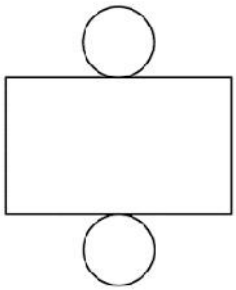


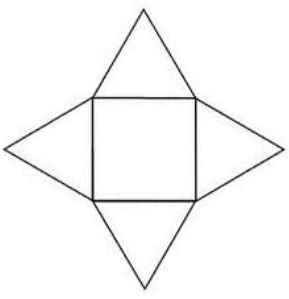
5. Draw the front, base and top view for the adjacent figure.

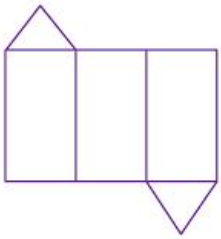


SECTION C

1. Name the solids formed through the following nets.

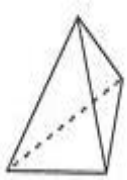
(i) 

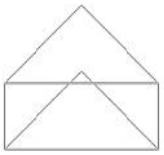
(ii) 

(iii) 

2. From the following figures, write the total number of faces, edges and vertices.

i) ii)





3. Draw a tetrahedron and verify the Euler's formula.
4. Tabulate the number of faces, vertices and edges of each of the platonic solids.

Solids	f	e	v	$f + v$	$e + 2$
Octahedron					
Dodecahedron					

5. Write the number of faces and edges of each of the following solids:

a) Triangular prism b) Hexagonal prism c) square prism.

SECTION D

1. Find the unknown numbers using Euler's formula.

Faces	4		6	7
Vertices		8	10	
Edges	4	5		7

2. Give one example for octahedron and pyramid also verify the Euler's formula.
3. i) Verify, if $(f + v) = e + 2$ for the following figure

ii)Verify Euler's relation for a square pyramid and a pentagonal prism.

4. Using graph paper, draw the following figures.

i)a cuboid ii)a square prism of height 3 cm

iii)a hexagonal prism of height 5 cm

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APEX PON VIDYASHRAM, VELACHERY (2017 – 18)

HALF-YEARLY – WORKSHEET 5

CLASS: VIII **MATHEMATICS**

DATA HANDLING

SECTION A

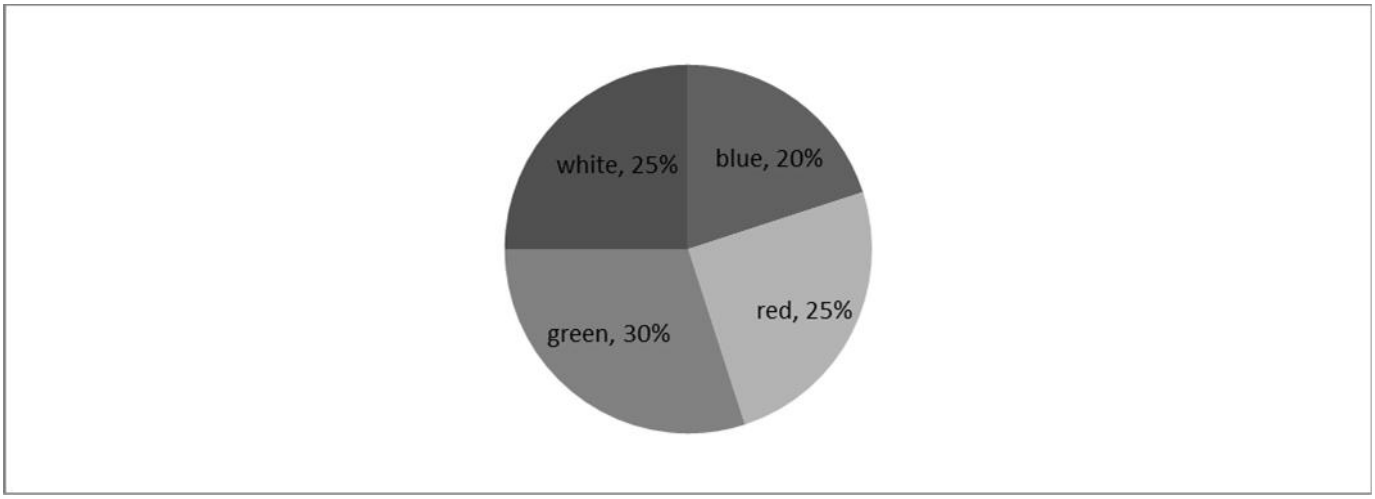
1. The difference between the upper class limit and the lower limit is _____
2. A data is divided into the three classes, namely, 5-10, 10-15, 15-20. The class size of the class intervals is ____
3. The height of the bar in a histogram shows the _____
4. In the pie chart if A=40% ,B=15% and C=45% then the central angle of B is ____
5. If two unbiased dice are thrown, then the probability of getting a sum 5 is _____

SECTION B

1. Coin A is flipped 3 times and coin B is flipped 4 times. What is the probability that the number of heads obtained from flipping the two coins is the same?
2. From a deck of cards, Deborah took out one card at random. What is the probability that she got a prime number?
3. Given below are the marks obtained by 20 students. 30, 61, 55, 45, 64, 67, 27, 49, 56, 74, 26, 55, 82, 36, 54, 34, 52, 77, 30, 47, 88. Prepare the frequency table using tally marks.
4. The weekly pocket expenses of 30 students are given as follows 76, 89, 65, 84, 92, 100, 120, 55, 88, 95, 110, 63, 160, 45, 62, 118, 86, 95, 72, 103, 94, 87, 105, 115, 80, 73, 62, 94, 90, 66. Construct a frequency table with class interval 40 – 50, 50 – 60, etc.
5. A die is thrown. What is the probability of getting (i) a prime number (ii) a number greater than 4?

SECTION C

1. The pie chart shows the colours selected by family to be painted on their walls. Read the data and answer the questions



(i) Which is the favourite colour of the family?

(ii) Which colour were equally liked by the family?

(iii) Which colour is liked the least?

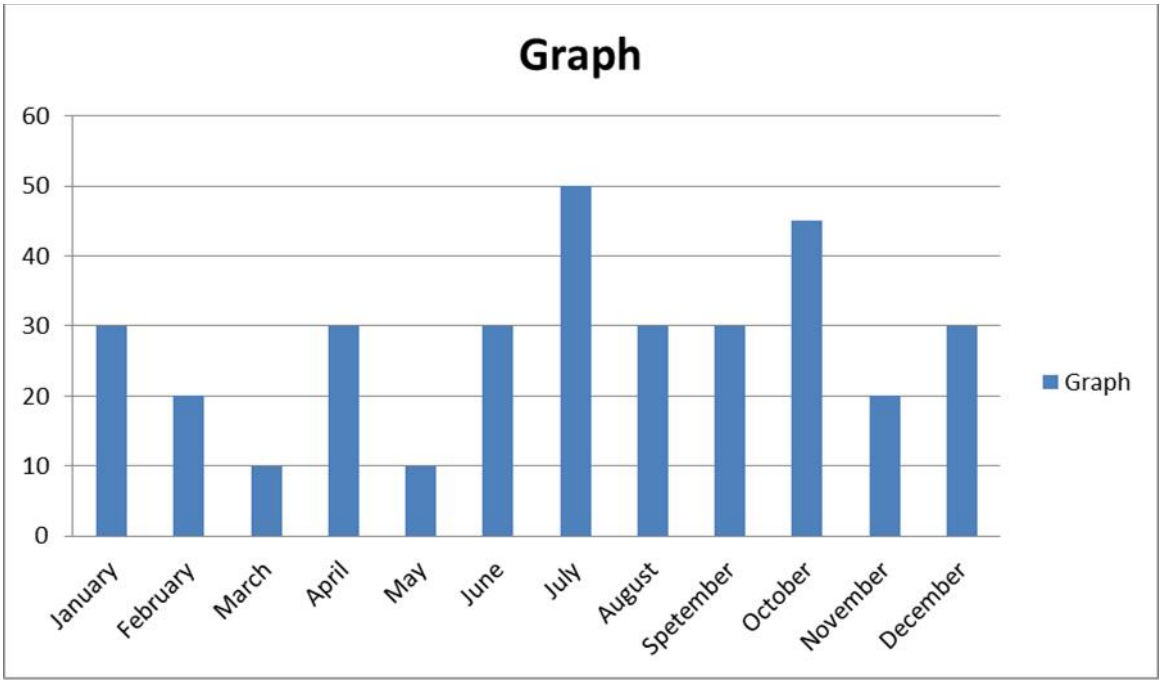
2. In a bag, there are 7 red marbles, 5 blue marbles and 4 green marbles.

(i) What is the total number of marbles in the bag?

(ii) Find the probability of drawing the following:

(a) A red marble (b) A blue marble (c) A green marble

3. Look at the graph below and answer the question given below. (Sale of T.V in a shop from Jan. to Dec.)



(i) In which month was the sale of T.V. maximum?

(ii) In which month was the sale of T.V. minimum?

(iii) In which months 45 T.V. were sold?

4. A die was thrown 25 times and fallowing scores were obtained:

1,2,5,6,4,4,3,2,1,5,2,3,3,6,6,5,4,4,3,2,1,2,2,6,5.

Prepare a frequency distribution table with tally marks.

5. Following figures relate to the weekly wages (in rs) of 15 workers in a factory:

200,300,250,400,350,200,250,200,350,400,200,350,300,200.

(i) What is the range of the data (in rs)?

(ii) How many workers are getting rs. 350?

(iii) How many workers are getting minimum wages?

SECTION D

1. From a well shuffled deck of cards. One card is drawn at random. Find the probability of getting (i) a red card? (ii) a ace card? (iii) 10 black card (iv) a face card?
2. The distance between athletes on a running track is given below

Distance(in cm)	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50	50 – 55
Frequency	5	8	10	17	9	8

3. Draw the histogram for the following data

Years	1990 – 1992	1992- 1994	1994 – 1996	1996 – 1998	1998 – 2000	2000 – 2002
Production of cars (in thousands)	12	14	18	18	22	24

4. The data on religion wise division of 1080 workers of a factory are given below

Religion	Hindu	Muslim	Sikh	Christian
Number of workers	450	270	255	105

Draw a pie chart to represent the data.

5. The following data shows the agricultural production in India during a certain year.

Food grain	Rice	Wheat	Coarse cereal	Pulses
Production (in millions of tonnes)	57	76	38	19

Draw a pie chart to represent the data