Maths is fun

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This is an effort to make mathematics a more joyful experience and students get self motivated to remain engage with the subject. “Maths is fun” idea spurred from the feelings expressed by various school teachers and students.

I hope that this meticulous work would prove to be a work of worth in the field of teaching, learning, drillwork and evaluation. “Maths is fun” will give formative assessment (FA) a new direction for Standarad - 9.

I express my gratitude to my teachers, colleagues, school teachers and trainees without whose inspiration and help this task couldn’t be completed.

My sincere thanks to GCERT – CTE, Ahmedabad center for extending the financial support to publish this booket.

I appreciate your comments and suggestions in order to make “Maths is fun” more authentic and useful.

CTE : AHMEDABAD Dr. K. H. Yadav

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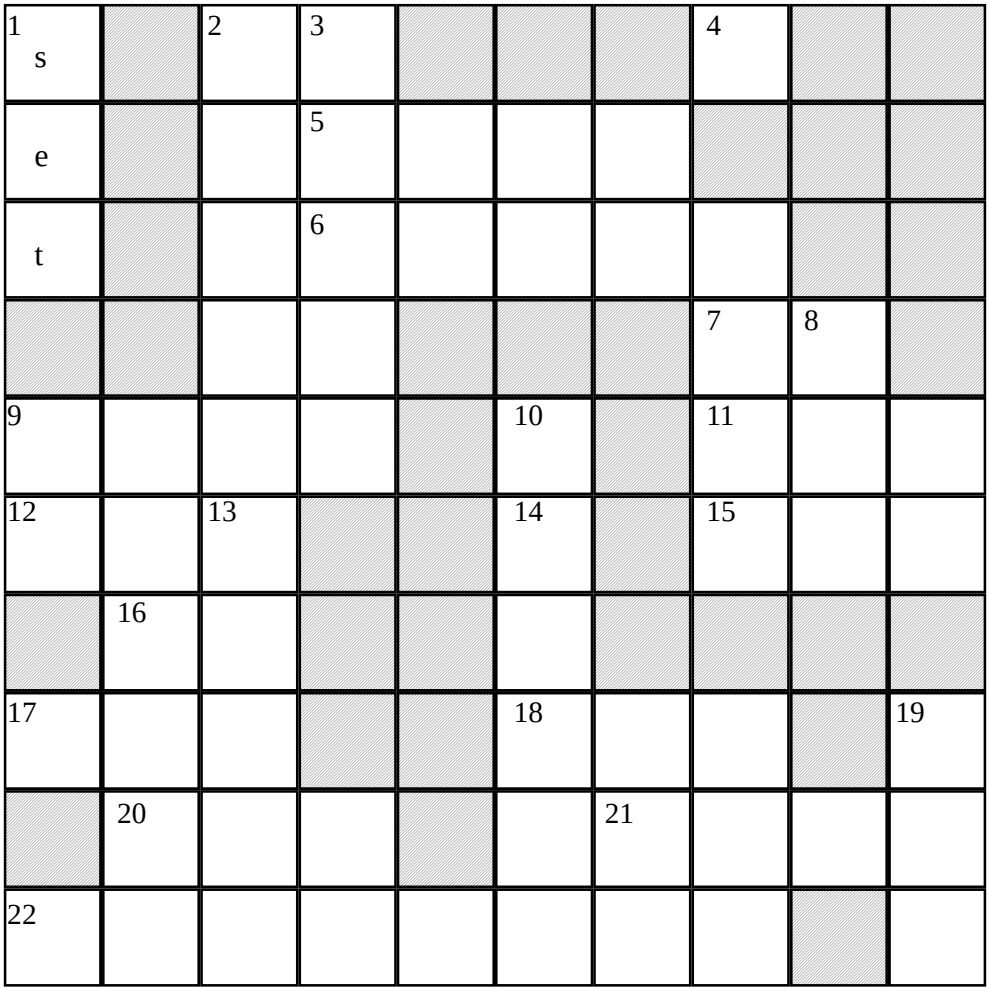
Set Operation



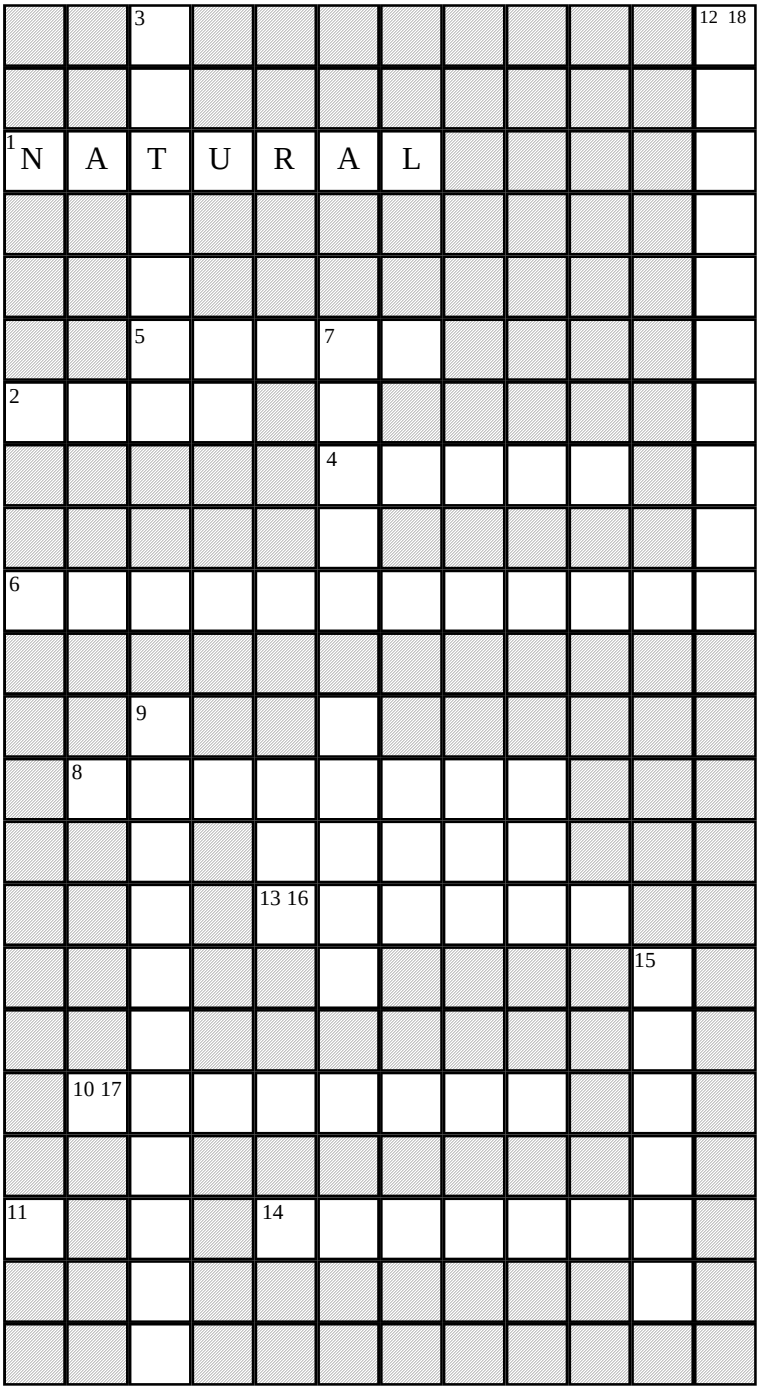
Across : ($\rightarrow$)

4. If $\cup$ = {1,2,3,4}, A={2,3} and A'={1,4} then $A \cup A'$ = {2,3} $\bigcup$ {1,4} = ... (1)
5. ..... diagram is useful in understanding various relation between sets. (4)
6. Two sets have same elements they are said to be ..... sets (5)
10. If A={1,2,3}, B={4,5,6} then $A \cap B$ = ... (1)
11. A={X / X $\in$ N, X is a multiple of 3, X $\leq$ 10}, then A={–,–,–} (3)
12. X is a member of the set A, we write ..... (3).
15. If A $\subset$ B and B $\subset$ A, then ..... (3).
17. If A={2,3,5,7} then $A \cup \varnothing$ = {2,3,5,7} $\cup \varnothing$ = {2,3,5,7} = ... (1)
18. In De Morgan's Law $(A \cap B)'$ = ... (3).
20. If {X/ X $\in$ A and X $\in$ B}, then in symbol it is written as ..... (3)
9. All elements of a set A are present in set B, then the set is called as subset of the set B, is denoted by ..... (3).
21. If $\propto$ = {G, A, T, E} and = {L,O,C,G,A,T,E} then $\propto \cap B$ = ... (4).
22. If $A \cap B = \varnothing$ then the sets A and B are said to be ..... set (8).

Down : ($\downarrow$)

1. ..... theory is the branch of mathematics that srudies sets, which are collections of objects. (3).
2. Set without any member is called a ..... set. (4).
3. ..... set is a subset of itself (5).
7. If $\cup$={1,2,3} and A = {1}, then A'= ..... (2).
8. If A = {1,2,3,4} then number of subsets of A are ..... (2).
13. If {X/X $\in$ A or X $\in$ B} then in symbol it is written as ..... (3).
14. In De Morgans Law $(A \cup B)'$ = ... (3).
16. x is not a member of the set A, we write ..... (3).
19. If x = {L,E,F,J,G} and Y={E,L,G} then $X \cap Y$ = {...., ..., ...} (3)

Number System



Across :

1. {1,2,3...} denoted set of ..... number (7).
2. Which number comes in W but not in N. (4).
4. From which word 'rational' comes. (5)
6. How many numbers are there between two rational mumber (10)
8. If $a \in R^+ \& n \in N$ *and* $x^n = a$ *where* $x \in R$ *then* x is called .....n^{th} root of a (8).
10. $^{P}/_{q}$ is which type of number ? (8)
13. Rational number do not have ..... representation in the $^{P}/_{q}$ from (6)
14. The sum of rational number is rational mumber. which type of property it is for Q ? (7)
16. Corresponding to every real number there is a ..... point on number line. (6)
17. $\left(\frac{\sqrt{3}}{2}\right) \cdot \left(\frac{\sqrt{3}}{2}\right)$ is ..... number (8)
5. The intersection of set of rational no & set of irrational number is ..... set (5)

Down Words :

3. Which set is represented by Z ? (7)
7. $\frac{3}{8}$ = 0.375 What we call these type of decimal expression (11).
9. $\left(\frac{2}{5}+\frac{4}{9}\right)=\left(\frac{4}{9}+\frac{2}{5}\right)$ which type of property it is ? (11)
11. Which alphabet is used to denote the set of real number ? (1)
12. The real numbers which are not rational are called ..... number (10)
15. W is the ..... of Z.
18. $\sqrt{2}$ belongs to set of ..... number. (10)

1 1	.	$\overline{2}$	$\overline{7}$		2		3
				4		5	
6		7	8		9		10
	11		+		+		–
	12						
13		14		15		16	

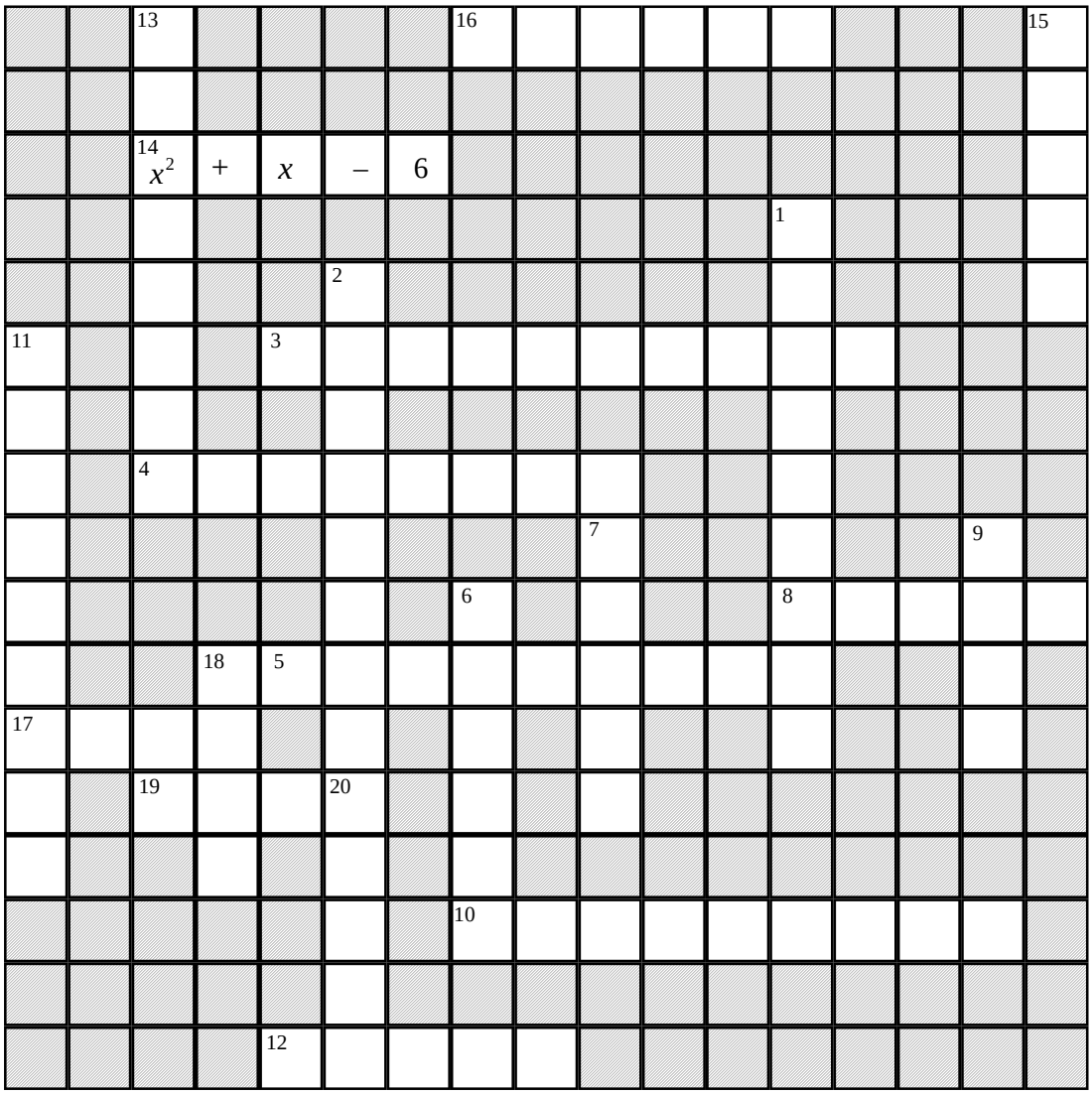
Across :

1. Write $^{14}/_{11}$ in its non-terminating, recuring form (4)
2. $7^8 \times 7^{-11}$ = ... (1)
3. $(3^{-4})^2$ = ... (1)
4. $\frac{14^{\frac{5}{6}}}{7^{\frac{5}{6}}}$ = ... (1)
5. $3^{-2} \times 7^{-2}$ = ... (1)
6. $\sqrt{9}$ = ... (1)
7. $\left(7+\sqrt{7}\right)\left(7-\sqrt{7}\right)$ = ... (2)
12. $\left(\sqrt{6}\right)+\left(-\sqrt{6}\right)$ = ... (1)
13. $\sqrt[3]{\sqrt{64}}$ = ... (1)
14. $8\sqrt{8} \div 3\sqrt{2}$ = ... (1)
15. The $^{P}/_{q}$ form of $0.\overline{35}$ is ..... (1)
16. $\sqrt[n]{2}$ = b then b^{2n} = ... (a,b >o, $n \in N$)

Down

8. $\frac{3}{2-\sqrt{3}}$ is rationalised by ..... (3)
9. $\left(\sqrt{16}+\sqrt{3}\right)^2$ = ... (3)
10. $\left(\sqrt{10}-\sqrt{3}\right)\left(\sqrt{10}-\sqrt{3}\right)$ = ... (3)
11. $2\sqrt{7} \times 5\sqrt{7}$ = ... (2)

Polynomial



* Example :

Ans. 14] $x^2 + x - 6$

Across : ($\rightarrow$)

3. An Expression of the form $a_n x^n + ... + a_0, a_n \neq o,\ a_1, ... a_n \in R$. is called ..... in Variable x. (10)
4. If the polynomial has two terms, it is called a ..... (8).
5. A symbol which takes different numerical values is called ..... (8)
8. A Polynomial having ..... terms is Called trinomial. (5).
10. Dividend = (Divisor). (quotient) + ... (9)
12. By using appropriate identity, what is the value of 107×102 ? (5)
14. If one factor of polynomical $x^3 + 4x^2 - 3x - 18$ is $x + 3$, then the other factor is ..... (5)
16. If a + b + c = 0, By using the identity $a^3 + b^3 + c^3 = 3abc$, then $(-28)^3 + (15)^3 + (13)^3$ = ... (6)
17. By using an approximate identity, the value of 105 $\times$ 95 = ...
19. Using appropriate identity, 97×103 = ... (4)

Down : ($\downarrow$)

1. A polynomial having degree two is known as ..... polynomial. (9)
2. The polynomial having only one term is called ..... (8)
6. $p(x) = ax + b,\ a \neq o,\ a, b \in R$ is a general form of ..... polynomial. (6)
7. A polynomial of the form $x^3 + 4x + 1$ is called ..... polynomial. (5)
9. If for some $x \in R, P(x) = o,$ then x is called ..... of the polynomial. (4)
11. The Value of $(997)^3$ = ... By using approximate idenfity. (9)
13. If we divide $x^4 - 2x^3 - 7x^2 + 8x + 12$ by $(x - 3)$, we get ..... (7)
15. By using appropriate identity. find $(107)^2$. (5)
18. What is the value of 57×63 by using $\left(a^2 - b^2\right) = \left(a - b\right)\left(a + b\right)$ (4)
20. By using appropriate idenfity, 105×102 = ... (5)

H	R	N	E	G	A	T	I	V	E
O	V	E	R	T	I	C	A	L	C
R	T	W	O	L	O	W	E	R	O
I	P	X	T	S	A	M	E	W	O
Z	I	N	T	E	R	I	O	R	R
O	R	D	E	R	E	D	R	F	D
N	A	N	G	L	E	G	I	O	I
T	H	I	R	D	B	Y	G	U	N
A	P	O	I	N	T	S	I	R	A
L	V	W	S	E	C	O	N	D	T
S	U	B	S	E	T	S	B	K	E
K	O	R	D	I	N	A	T	E	R
Q	U	A	D	R	A	N	T	S	G

One is done for you

Questions

1. The branch of mathematics known as ..... Geometry was developed by French mathematician Rene descaites. (10)
2. Every …….. on the number represents a unique real member. (5)
3. An …….. pair of real number, is represented in a plane with the help of two number lines. (7)
4. If A and B are non-empty subsets of R then $A \times B$, $B \times A$, $A \times A$ and $B \times B$ are all ……. of $R \times R$ (7)
5. There are …… perpendicular lines in the Cartesian plane (3)
6. …….. line in Cartesian plane is called X-axis. (10)
7. ……. line in Cartesian plane is called Y-axis. (8)
8. In the Cartesian Co-ordinate system, the perpendicular axis divide the plane in …….. parts (4)
9. Point (4,0) lies on the …… axis. (1)
10. Point (0,2) lies on the ……. axis. (1)
11. Point (4, -5) lies in the …… half-plane of the X-axis and to the right hand side of the Y-axis. (5)
12. For the origin O, abscissa and ……. are both zero. (8)
13. For a point, if the abscissa is - 3 and the ordinate is 5, then it lies in the ..... quadiant. (6)
14. The coordinate axis divide plane into four parts called …….. (9)
15. The Second quadrant is bounded by the …… x-axis and the positive y-axis. (8)
16. The point of intersection of the axis is called the …… (o,o). (6)
17. The measure of the …… between the $\overrightarrow{x'x}$ and $\overrightarrow{y'y}$ is 90. (5)
18. The third quadrant is the …….. of $\angle x'oy'$ (8)
19. The point having X-coordinate and Y-coordinate of negative sign lies in …… quadrant. (5)
20. The position of (y,x) and (x,y) are ..... only if x = y. (4)

Unit - 5
Linear Equation in two vaniables

A	B	R	–3	X	–	2	Y	+	O	D	F
2	5/6	A	6	Y	–	3	Y	–	O	B	C
R	O	E	2	1	0	b	4	+	5	6	7
A	a	N	B	A	T	8	9	X	3	3	8
B	T	I	÷	N	N	N	O	T	5	6	9
N	W	L	X	O	D	C	N	O	T	6	7
O	A	L	Z	Y	2	E	F	X	Z	2	0
T	W	O	V	+10	H	Y	G	W	4	5	Z
M	P	C	+1	-2	I	X	E	+	-a	X	-10
L	K	÷	J	n	O	W	+	S	W	X	+2
-1	N	Q	U	20	2	10	V	Y	Z	–	56
R	I	N	F	I	N	I	T	E	L	Y	÷
Y	–	2	X	+	O	R	I	G	I	N	V

ONE IS DONE FOR YOU

Example : Q-6 : Answer : The one element of the Solution set of equation $3x-2y=3$ is (1,0).

1. What is coefficient of x in this equation. ax + b = 0 (1)
2. "The cost of a notebook is twice the cost of a pen." Represent this statement as a linear equation in two variables. (6)
3. The linear equation in two variables like $5x + 6y = 0$ Find the value of a, b & C & make three digit number. (3)
4. The equation $3y^2 + 2x = 2$ is ..... a linear equation in two variables. (3)
5. The equation $y = 2x + 5$ is a linear equation in ..... variables. (3)

- **Find three elements of the solution set of the following equations**

6. $3x - 2Y = 3$ (6)
7. $2x = 4$ (6)
8. $3Y = 2x + 7$ is a linear equation in two variables & hence, it has ..... muny solutions. (6)

- **Examine which of the following points are solution of the equation $2x - y = 5$ & which are not :**

9. [3, 1] (3)
10. [0, 5] (3)
11. [4, 2] (3)
12. If $x = 1, y = 2$, is a solution of the equation $3x - 2y = k.$ Find the value of k. (2)
13. If $x = 1,\ y = 3$ is a solution of the equation $3x + ky = 9$ find the value of k. (1)
14. A solution (x, y) of the linear equation $ax + by + c = 0$ in two variables is a point in the coordinate plane. If all the solution of $ax + by + c = 0$ are plotted in the coordinate plane, we get infinitely many points which are all ..... (9)
15. If $a = 2k, b = 5k,\ c = 7k,\ k \neq 0$ & $k \in R$, then find the value of k. *If* $(b - a,\ c - b)$ is a solution of the linear equation $2x + 3y = 10$ (1)
16. In the plane, the equation $y = mx$ represents lines through ..... for different values of m. (6)
17. If $x = 2,\ y = 5$ is a solution of the equation $5x + 7y - k = 0,$ then the value of K is (2)

A	P	G	E	O	M	E	T	R	Y	L	X	B
D	I	L	C	U	E	V	Z	U	A	M	B	I
O	X	C	I	R	C	L	E	U	G	N	T	C
N	W	Q	H	Z	F	S	Q	I	Z	E	R	O
E	X	T	H	A	L	E	S	Y	G	I	C	N
F	D	H	R	U	N	D	E	F	I	N	E	D
S	I	N	F	I	N	I	T	E	D	L	U	I
U	A	E	J	S	T	R	A	I	G	H	T	T
R	M	E	W	Q	T	M	L	H	O	S	H	I
F	E	T	K	H	Z	I	U	T	W	V	E	O
A	T	R	G	A	N	N	T	P	R	Y	O	N
C	E	I	K	E	V	X	S	U	Z	M	R	A
E	R	H	J	M	P	P	O	I	N	T	E	L
L	B	T	Y	Q	O	X	P	A	R	T	M	Z

1. Which word comes from the combination of two Greek words ‘geo’ meaning the ‘earth’ and metrein meaning to ‘measure’ (8)
2. Who is the pioneer of geometry ? (6)
3. Pythagoras was a student of ……. (6)
4. A circle is bisected by its ……. (8)
5. The measure of angles at the base of any isoceles triangle are …… (5)
6. According to Thales theorm, “Any angle inscribed in semi cirde is a …….... angle.” (5)
7. Who was a teacher of mathematics at Alexandria ? (6)
8. Euclid divided his famous treatise ‘the elements’ into …….. chapters. (8)
9. The dimension of geometric quantity solid is …….. (5)
10. The dimension of surface is ……. (3)
11. The dimension of line is ……. (3)
12. The dimension of point is …….. (4)
13. A …….. has no part. (5)
14. A …… has breadthless length. (4)
15. A …… line is a line which lies evenly with the points on itself. (8)
16. A ……. has length and breadth only. (7)
17. Point, line, plane are taken as ……. terms. (9)
18. The whole is greater than a ……. (4)
19. A …….. can be drawn with any centre and any radius. (6)
20. ……. lines can pass through a single point. (8)
21. …….. needs a proof. (7)
22. Euclid stated that all right angles are equal to each other in the form of a ……. (9)
23. The statement of the type ‘if p, then q’ is called a …….. statement. (11)
24. The statement of the type ‘p if and only if q’ is called a ……. statement. (13)

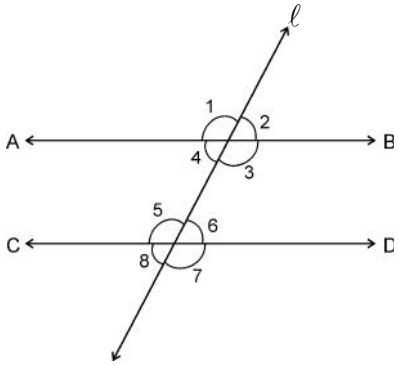
Primary Concepts of Geometry - 1

C	O	P	L	A	N	A	R	M	Z	A	N	G	L	E
X	O	C	N	U	T	N	E	U	R	G	N	O	C	Q
T	T	R	A	N	V	E	R	S	A	L	I	B	O	L
N	J	S	R	L	T	V	Z	U	Y	S	M	T	M	I
E	L	I	N	E	X	T	E	R	I	O	R	U	P	N
C	S	T	R	U	S	I	W	B	D	T	P	S	L	E
A	E	R	O	V	X	P	C	M	V	O	U	E	E	A
J	N	S	I	O	P	P	O	S	I	T	E	J	M	R
D	I	Q	R	J	S	Q	W	N	T	X	K	V	E	P
A	L	T	E	R	N	A	T	E	D	R	W	S	N	A
F	W	M	T	U	H	V	W	G	Z	I	T	U	T	I
K	E	U	N	R	T	C	O	L	L	I	N	E	A	R
R	K	R	I	G	H	T	X	K	S	R	V	G	R	K
E	S	U	P	P	L	E	M	E	N	T	A	R	Y	M
A	C	U	T	E	L	P	A	R	A	L	L	E	L	I

STATEMENTS

1. Name the undefined term which has no part. (5)
2. A set of points which extends endlessly in both the directions. (4)
3. If three or more distinct points lie on a straight line, then these points are called…….. (9)
4. If two line segment have equal length, then they are called ……. (9)
5. The set of points A and all the points on the side of A towards B on the line $\overleftrightarrow{AB}$. ….. (3)
6. If there exists a plane containing all of the given points, the points are said to be ……. (8)
7. The lines which are not coplanar are called …….. (4,5)
8. When two planes are such that there intersection is the empty set, then they are said to be …….. planes. (8)
9. The union of two distinct rays having the same initial point and not lying in the same line is called ……. (5)
10. An angle having the measure 90^0 is called a …… angle (5)
11. An angle having the measure less than 90^0 is called an …….. angle. (5)
12. An angle having the measure more than 90^0 is called an …….. angle. (6)
13. Two angles are said to be …… to each other if the sum of their measure is 90^0. (13)
14. Two angles are said to be ……. to each other if the sum of their measures is 180^0. (13)
15. Two angles are said to be …….. angles if they have same vertex and a common arm and uncommon arms are on either side of the common arm. (8)
16. Two distinct rays in the same line and having the same initial point are called ……. rays. (8)
17. Two adjacent angles are said to form a …… if their uncommon arm are opposite rays. (6,4)
18. If the interior angles on the same side of a transversal to two distinct coplanar lines are supplementary, then the lines are …… (8)

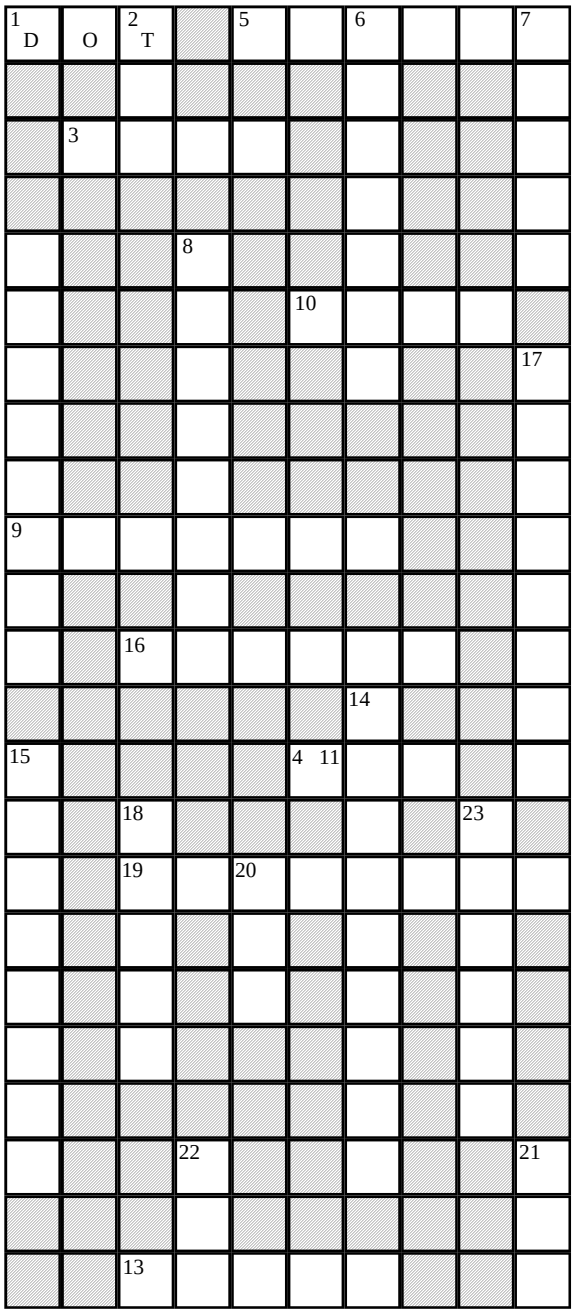
(Q) Look at the figure given below and answer the following questions :



$\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are two parallel line and ℓ is transversal line.

19. $\angle 1 \& \angle 5$ are called ..... angles. (13)
20. $\angle 3 \& \angle 5$ are called ..... angles. (9)
21. $\angle 1, \angle 2, \angle 8, \angle 7$ are called ..... angles. (8)
22. $\angle 3, \angle 4, \angle 5, \angle 6$ are called ..... angles. (8)
23. line 'l' is called ..... (11)

Primary Concepts of Geometry - 1



Across : ($\rightarrow$)

1. A Point is represented by a ..... (3)
3. How many line can be determined by four distinct points in which three of them are collinear, not all are collinear ? (4)
5. Linesegment is a ..... of a line. (6)
9. Opposite rays have same ..... point. (7)
10. When P = Q then what is the distance between points P & Q ? (4)
13. ..... is undefined term in terms of geometry. (5)
16. What we call point 0 (o, o) ? (6)
19. If line $\ell \cap m = \{¤\}$ then lines are ..... (8)
22. Corresponding to each point on a line. How many real numbers are there. (3)

Down : ($\downarrow$)

2. How many minimum number of pointes we determine to construct a line. (3)
4. A & B are two points on a line then d(A,B) = ... is called unit distance. (3)
6. If the numbers p, q & r corresponding to points P, Q, R respectively and if p < q < r then point Q is situated ..... P and R. (7)
7. How many minimum number of point should be there to call them collinear points ?? (5)
8. If a line passing through the midpoint of a line segment then what we call that line ? (8)
11. How many mid-point are there in every line-segment ? (3)
12. How many bisectors are there of a line-segment ? (8)
14. Line extend ..... on both the sides. (9)
15. If two line - segments XY and PQ have equal lengths, then they are said to be ..... (9)
17. If P and Q are two points on a line then what is d (P, Q) represents ? (8)
18. Which one is taken as universal set in geometry ? (5)
20. What is $\overrightarrow{AB}$ represent ? (3)
21. If line $m_1 \cap m_2 = \{R, l\}$ then at how many points line intersect. (2)
23. If the numbers ‘a’ and ‘b’ corresponding to points A and B respectively then $|a-b|$ denote ..... of line. (6)

Primary Concepts of Geometry - 2

A	X	P	S	A	L	T	E	R	N	A	T	E	Z
M	C	O	M	P	L	E	M	E	N	T	A	R	Y
C	O	P	L	A	N	A	R	Z	U	N	I	O	N
Z	R	I	G	H	T	P	N	C	S	P	A	C	E
A	R	M	S	D	I	A	D	J	A	C	E	N	T
V	E	R	T	E	X	J	Q	T	B	U	H	R	X
X	S	U	P	P	L	E	M	E	N	T	A	R	Y
M	P	X	Z	A	C	U	T	E	B	N	L	K	P
C	O	N	G	R	U	E	N	T	S	S	F	S	A
A	N	G	L	E	M	Z	S	V	U	M	P	K	R
V	D	O	B	T	U	S	E	B	M	X	L	E	A
L	I	N	E	A	R	R	S	W	Z	V	A	W	L
I	N	P	B	I	S	E	C	T	O	R	N	Z	L
N	G	Q	C	A	T	Z	T	H	R	E	E	X	E
E	V	M	L	V	U	N	I	V	E	R	S	A	L

1. Space is a ..... set. (9)
2. A line and a plane are subsets of ..... (5)
3. Each plane contains at least ..... non-collinear Points. (5)
4. If there exists a plane containing all of the given points, the points are said to be ..... (8)
5. A line passing through two distinct points of a plane is a ..... of the plane. (6)
6. The lines which are not coplanar are called ..... lines. (4)
7. The subsets of the plane on each side of the line are called ..... (10)
8. When two planes are such that their intersection is the empty set, then they are said to be ..... planes. (8)
9. The intersection of two distinct intersecting planes is a ..... (4)
10. The union of two distinct rays having the same initial point and not lying in the same line is called an ..... (5)
11. In given figure point Y is called the ..... of the $\angle XYZ$.(*fig*(1)) (6)

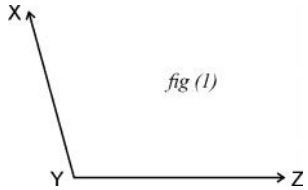


fig (1)

12. The rays $\overrightarrow{YZ}$ and $\overrightarrow{YX}$ are called the ..... of the $\angle XYZ$ in figure. (*fig 1*) (4)
13. An angle having the measure 90^0 is called a ..... angle (5)
14. An angle having the measure less than 90^0 is called an ..... angle. (5)
15. An angle having the measure more than 90^0 is called an ..... angle. (6)
16. Two angles are said to be ..... to each other if the sum of their measures is 90^0. (13)
17. Two angles are said to be ..... to each other if the sum of their measures is 180^0. (13)
18. If two angles have same measure, they are said to be ..... angles. (9)
19. Two angles are said to be ..... angles if they have some vertex, a common arm and uncommon arms are on either side of common arm. (8)
20. Two adjacent angles are said to form a ....., if their uncommon arms are opposite rays. (6)
21. Look at the figure, if D is in the interior of $\angle BAC$ in such a way that $m\angle BAD = m\angle DAC$, then $\overrightarrow{AD}$ is called a ..... of $\angle BAC$ (*fig 2*) (8)

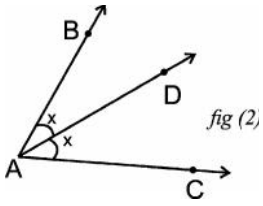
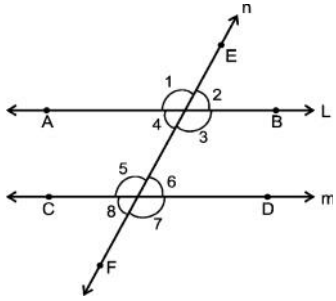
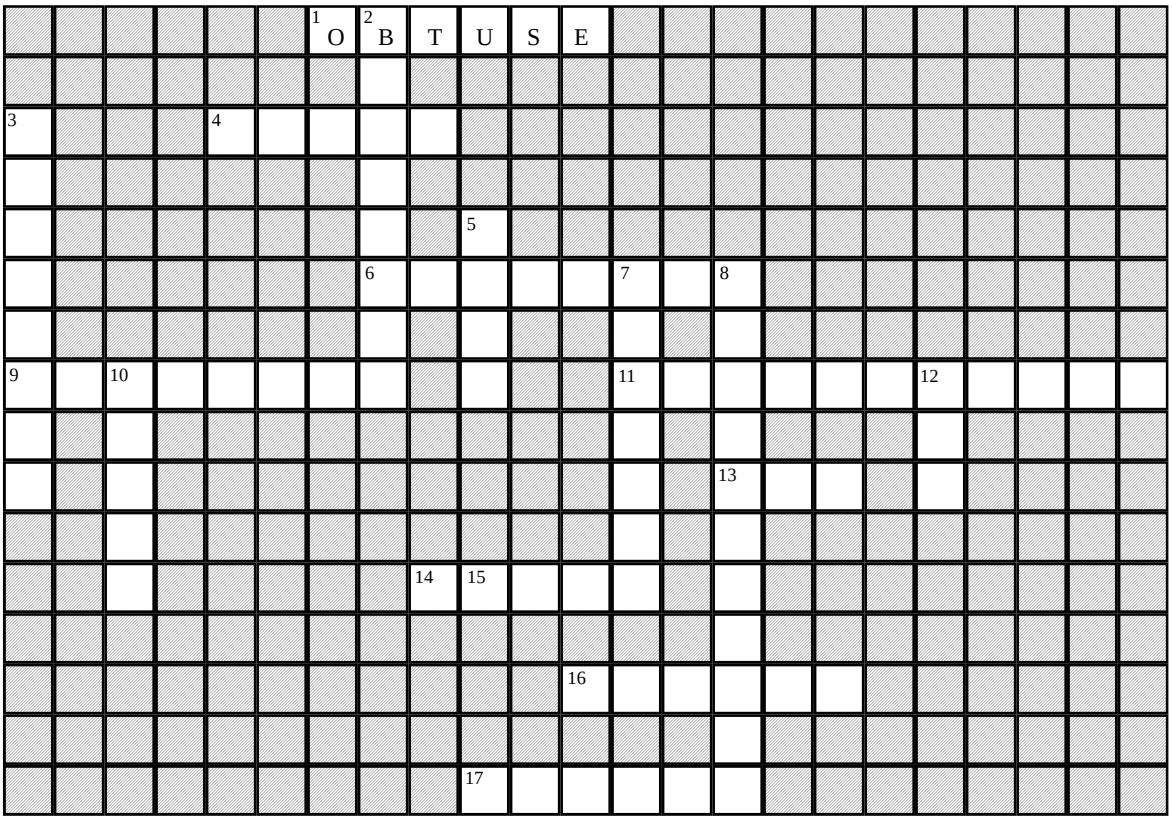


fig (2)

22. In figure(3) $\ell \,ll\, m$ and 'n' is called their ..... (11)
23. The pair of $\angle 4$ and $\angle 8$ are ..... angles. (*fig(3)*) (13)
24. The pair of $\angle 3$ and $\angle 5$ are ..... angles. (*fig(3)*) (9)
25. An angle is a ..... of rays. (5)
26. If one angle of a linear pair is acute, then the other angle is ..... (6)



Triangle



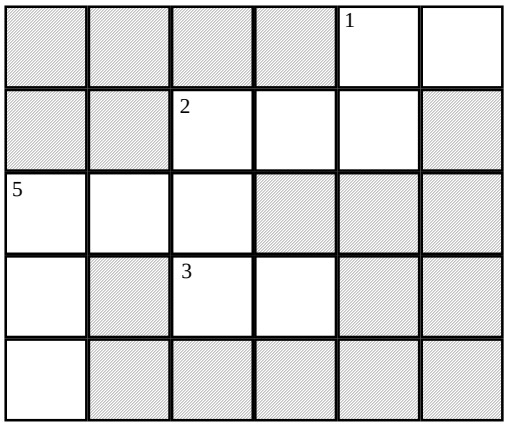
Across : ($\rightarrow$)

1. If any one angle of a triangle has measure more than ninety degree, then it is ..... angle triangle. (6).
4. A triangle can have two right angles. True of False ? (5)
6. The union of three line segments determined by 3 non-collinear points is called a ..... (8)
9. The intersection of the interiors of all the angles of a triangle is called ..... of the given triangle. (8)
11. If all the three sides of a triangle are congruent, it is which type of triangle ? (11)
13. For triangle ABC, if D is a point such that B-C-D, then name the angle which is the exterior angle of triangle ABC? (3)
14. If any one angle of a triangle is a right angle, then other two angles are ..... angles. (5)
16. Equiangular triangle has all the ..... congruent. (6)
17. Exterior angle forms which type of pair of angles with any one angle of a tringle ? (6)

Down : ($\downarrow$)

2. Line segment passing through mid point of another line segment is called its ..... (8)
3. If measures of two sides are equal, then measures of their ..... angels are also equal. (8)
5. In SAS postulate S stands for ..... (4)
7. Sum of measures of any two sides of a triangle is ..... than the measure of third side. (1)
8. Equilateral triangle is also a ..... triangle. (11)
10. A triangle partitions a plane into ..... parts. (5)
12. An isosceles triangle has how many sides congruent ? (3)
15. For the correspondence BAC <–> YXZ, for triangle ABC and triangle XYZ which is the angle that corresponds to angle Z? (1)

TRIANGLE



Across : ($\rightarrow$)

1. If measures of angles of triangle are in propotion 2:3:5, find $m\angle A$. (2)
2. The sum of measures of all the angles of the triangle is ..... (3)
3. For triangle ABC, $m\angle A = 40$, $m\angle B = 60$, *find* $m\angle C$? (2)
5. In ΔABC, $m\angle A - m\angle B = 70$ *and* $m\angle B - m\angle C = 40$, *Find* $m\angle A$ (3)

Down : ($\downarrow$)

1. If the measures of the angels of triangle ABC are in proportion 1:2:3, then the measure of the smallest angel is ..... (2)
2. For triangle ABC, if $m\angle A = 2m\angle B$ *and* $m\angle B = 3m\angle C$ find the measure of $m\angle A$? (3)
5. In an isoceles triangle ABC, $\angle$ A and $\angle$ B are congruent, $m\angle C$ has a value greater by 60 than measure of $\angle$ A and $\angle$ B, Find $m\angle C$ (3)

Quadrilaterals

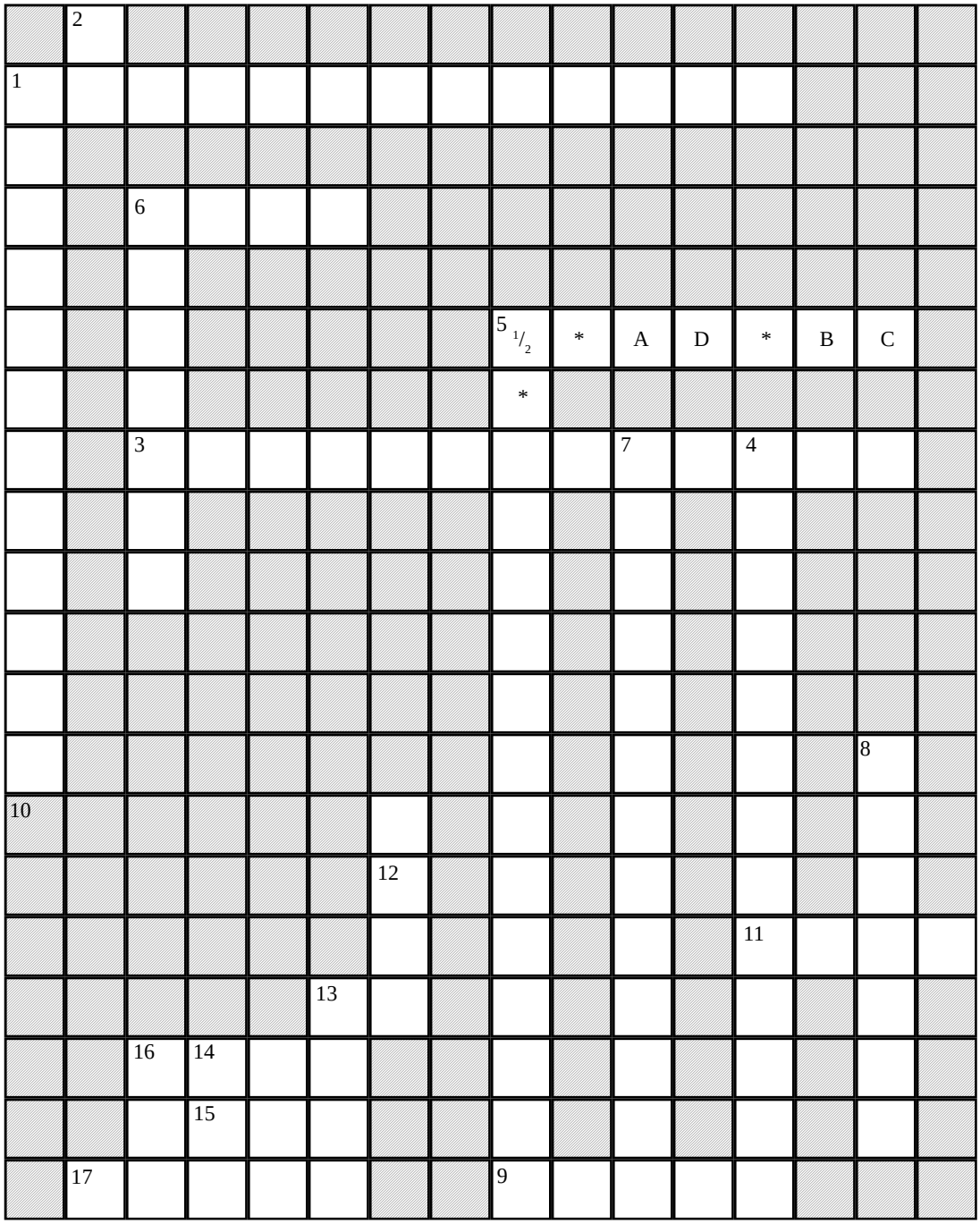
R	E	C	T	A	N	G	L	E	C	T	S	C
1	0	8	B	I	S	E	C	T	O	F	Q	O
M	7	W	T	S	F	M	P	S	N	R	U	M
P	A	R	A	L	L	E	L	O	G	R	A	M
E	M	P	T	Y	W	F	A	P	R	X	R	O
L	R	I	G	H	T	X	N	3	U	T	E	N
K	H	W	R	K	H	T	E	6	E	W	C	7
7	O	F	O	U	R	C	2	O	N	O	9	O
O	M	U	I	Z	E	P	A	R	T	Q	E	X
Q	B	1	2	6	E	N	5	$\sqrt{2}$	T	W	N	R
L	U	O	P	P	O	S	I	T	E	F	O	W
W	S	U	B	S	E	T	R	F	O	U	R	P
A	F	L	K	C	O	N	G	R	U	E	N	T

1. Answer of Question-1 : FOUR is done for you.

Questions

1. How many points are required to from a quadrilateral ? (4)
2. How many angles are there in a quadrilateral ? (4)
3. There are …… diagonals in a quadrilateral. (3)
4. Adjacent side of a quadrilateral have …….. end point. (6)
5. In a quadrilateral the intersection of opposite sides is ……. Set. (5)
6. How many angles are required to call them as adjacent angles ? (3)
7. A quadrilateral is a …… figure lying in a plane. (5)
8. The sides and set of vertices of a quadrilateral are …….. of the quadrilateral. (6)
9. In how many parts a plane which containing quadrilateral is divided by quadrilateral ? (5)
10. What is the sum of the angles of a quadrilateral ? (3)
11. How many pair of sides are parallel in a trapezium ? (3)
12. In a trapezium $PQRS$, *if* $\overline{PS} \| QR$, $m\angle p : m\angle Q = 7:3$ *and* $m\angle R = 99$, then $m\angle P =$ ……. (3)
13. If both the pairs of opposite sides are parallel then which type of figure it is ? (13)
14. A parallelogram is called a rectangle if all the angles are …….. angles. (5)
15. In a rhombus opposite sides are parallel and all the sides are ……. (9)
16. In $\square^{m}$ $ABCD$ if $m\angle A : m\angle B = 2:3$, them $m\angle D$ is ..... (3)
17. If all the side of a rectangle are congruent then it is called ……. (6)
18. In $\square^{m}$ $PQRS$ if $m\angle Q - m\angle R = 40$ them $m\angle P$ is ..... (2)
19. Diagonals of a parallelogram ……. each other (6)
20. Which angles are congruent in a parallelogram ? (8)
21. If the diagonals of quadrilateral are not congruent and bisect each other at right angles, then the quadrilateral is a ……. (7)
22. The diagonals of quadrilateral are congruent and bisect each other but not at right angle. Then the quadrilateral is …….. (9)
23. P and Q are the midpoint of $\overline{AB}$ and $\overline{AC}$ of ΔABC $\square PBCQ$ is a …… (9)
24. $\square PQRS$ is a square. If PQ=5 then QS is …… (2)
25. In rhombus PQRS if the diagonal PQ=8 and diagonal QS=6, then perimeter of rhombus is …… (2)
26. In $\square^{m} PQRS$ the bisector of $\angle P$ and $\angle Q$ intersect at X If $m\angle p = 70$ then $m\angle P \times Q$ is …… (2)
27. In $\square$STUV the measure of angles are in proportion 6:7:11:12 them $m\angle T =$ ……. (2)

Areas of Parallelogram & Triangles



→ CROSS WORD PUZZLE - ONE IS DONE FOR YOU

HORZONTAL CLUES :

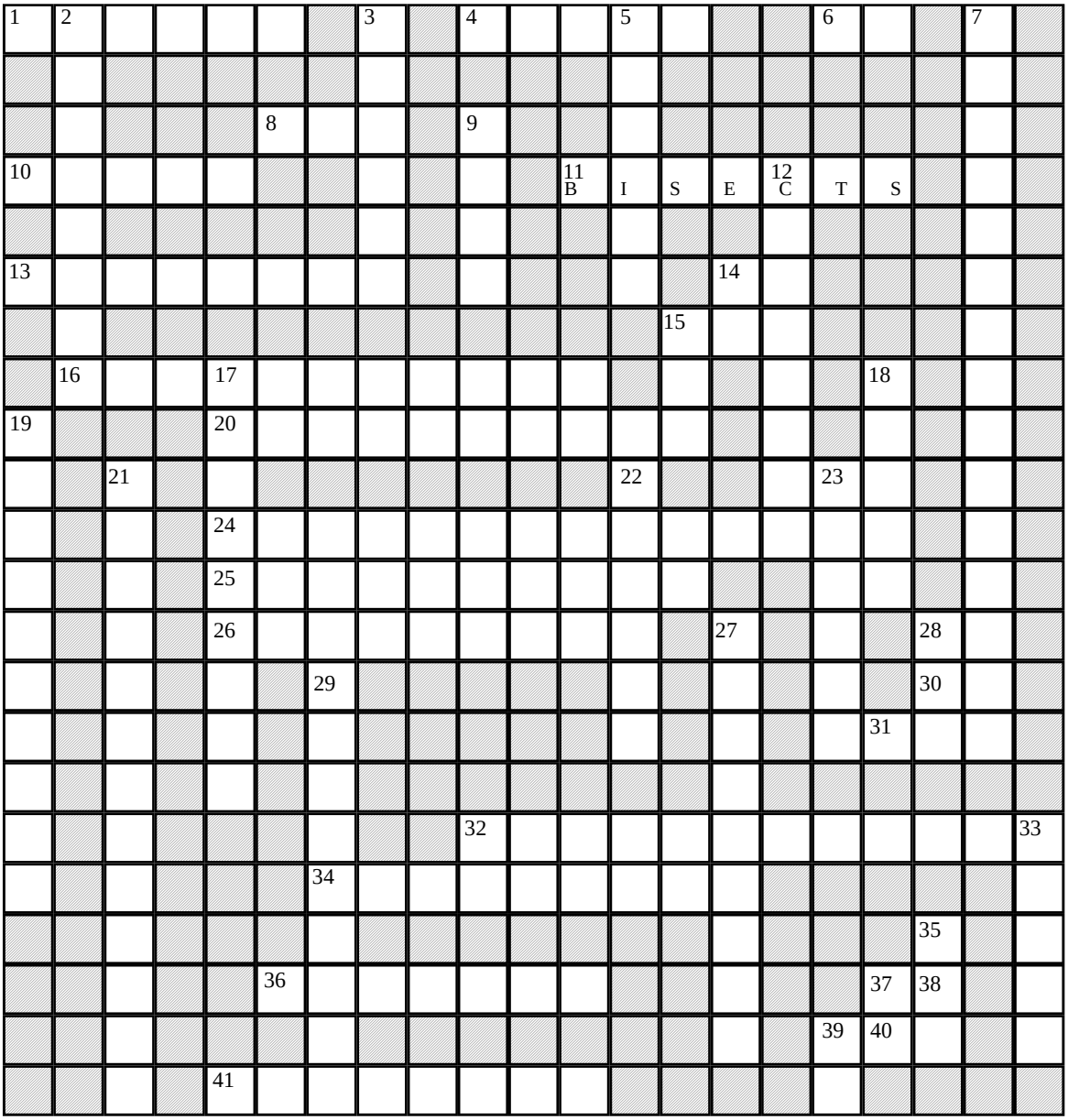
1. Quadrilateral having both the pairs of opposite sides parallel in known as ..... (13)
3 Area of rectangle is the product of its ..... (6) and ..... (7)
5 $\square ABCD$ is a rnombus where $\overline{AC} \& \overline{BD}$ are its diagonals, then area of ABCD= ..... (5)
6. Parallelograms having same base and lying between a pair of parallel lines, have the same ..... (4)
9. The intersection of a triangle & its interior is the ..... set. (5)
10. The ..... of a triangle are subsets of the triangle. (5)
11. Two triangles on the same base & lying between pair of Parallel lines have ..... (4)
13. $\square PQRS$ is a rhombus QS= 16 cm & length of each side = 10 cm. Find area of $\square PQRS$ in cm^2. (2)
14. in a $\square ABCD, \overline{AB}\ II\ \overline{CD}, \overline{DM}$ is the altitude on $\overline{AB}$ if AB=15cm, CD=25cm and DM = 10cm, then ABCD = ... cm^2 (3)
15. In $\square^n$ ABCD, $\overline{BC}$ is the base corresponding to the altitude $\overline{AM}$ if BC=8CM, AM=5cm, then ABCD = ... cm^2 (2)
16. $\overline{AD} \& \overline{BE}$ are the altitude of $\Delta ABC\ if\ AD = 6\,cm, BC = 16\,cm,\ BE = 8\,cm,$ then CA= ..... cm (2)
17. $\square ABCD$ is a rhombus if ABCD = 80cm^2 & AC=8cm, Then BD = ... cm. (2)

VERTICAL CLUES :

1. Paralleograms on the same base having equal areas lie between two ..... (13)
2. The region formed by the union of a triangle & it interior is called ..... region. (10)
4. A quadrilateral & the interior of the quadrilateral are two mutually ..... (11)
5. The area of a right triangle in ..... (13)
7. $\frac{\sqrt{3}}{4} \times (side)^2$ is the formula of ..... triangle. (11)
8. Every ..... is a parallelogram. (7)
12. $\square ABCD$ is a rhombus. if AB=25 & AC = 48, then ABCD in ..... (3)
13. $\square ABCD$ is rhombus if AC=12cm & BD=15cm, then the area of rhombus ABCD = ... cm^2 (2)
14. if for $\square^m ABCD, ABCD = 48cm^2, then\ ABC = ...cm^2$ (2)
15. In ΔABC, P,Q,R, are the mid-points of $\overline{AB}, \overline{BC} \& \overline{CA}$ respectively. if ABC = 60 cm^2, them PBCR = ... cm^2 (2)
16. In $\square ABCD, \overline{AD}\ II\ \overline{BC}, \overline{AM} \perp \overline{BC},$ such that B-M-C, if AD=8cm, BC=12 cm and AB=10 cm, ABCD = ... cm^2 (3)

CIRCLE

One Example is done for you



Across : ($\rightarrow$)

1. Set of points equidistant from a fixed point [5]
4. Line segment, both of whose end-points are the elements of the circle. (5)
6. $\overline{BC}$ is a chord which subtends $\angle BAC \& \angle BDC$ on minor $\overset{\frown}{BC}$. If $\angle ABC = 49^0 \& m\angle ACB = 51^0$, find m< $\angle BDC$. (2)
8. Set of point of a circle lying in each closed semi - plane of a line passing through 2 distinct point of the circle. (3)
10. Angle inscribed in semi-circle is ..... angle. (5)
11. A perpendicular drawn to a chord from the centre of a circle ..... the chord. (7)
13. Longest chord of the circle. (8)
15. D is on the major $\overset{\frown}{AB}$ of the circle with centre o, & m $\angle ADB = 45^0$ Find m $\angle AOB$ (2)
16. Congruent chords of congruent cirles are ..... from the centre of the circle. (11)
20. If a chord is a diameter of the cirle, then the arc corresponding to the circle is ? (10)
24. Opposite angles of a cyclic guadrilateral are ..... (13)
25. Circles in the same plane having same centre but different radii. (10)
26. In which part of the circle a point would lie, when its distance from the centre of the circle is greater than the radius of the circle ? (8)
30. A Chord of length 12 cn is at a distance 3cm from the centre of the circle, then find the radius of the circle. (2)
31. Bisector of $\angle A$ intersects circumcircle of $\Delta ABC \, at \, D. if \; M\angle BCD = 50^0$, then what is $M\angle BAC$?
32. A Circle passing through vertices of a triangle. (11)
34. If $\overline{AC} \& \overline{BD}$ are diameters of a circle, then $\square ABCD$ is ? (9)
36. Union of an arc & its corresponding chord. (7)
38. A Chord is at distance 3 cm. from the centre of the circle of radious 5cm, then what will be tea the length of the chord ? (1)
40. $\overline{AB}$ is a diameter of the circle, p is on the semi-circle & if m $\angle PAB = 40^0$, then m $\angle PBA$ is ? (2)
41. Centre of a circle lies in which part of a circle ? (8)

Down : ($\downarrow$)

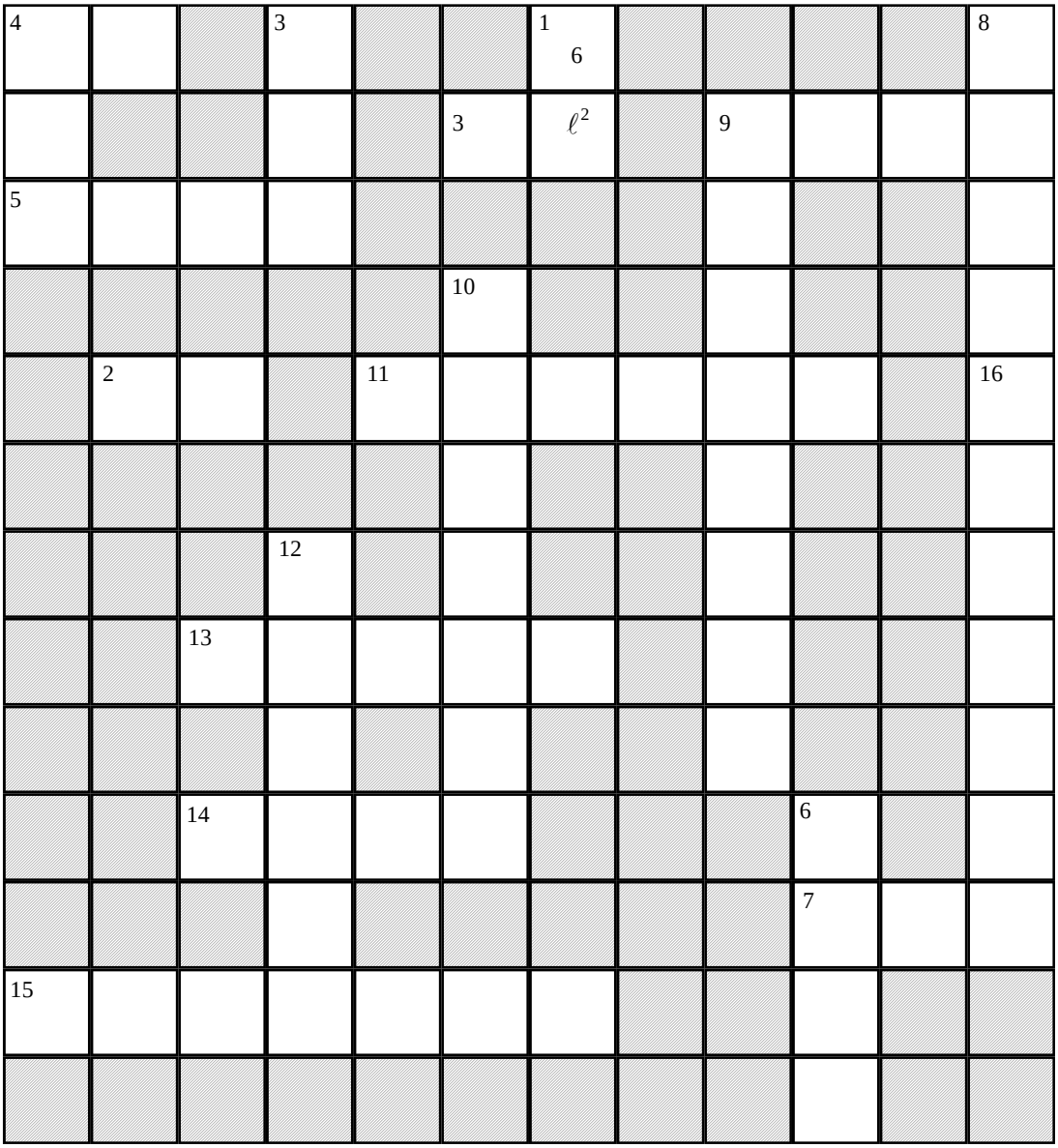
1. How many circles can be drawn through one point (8)
3. The region enclosed between two radii & their intercepted arc. (6)
5. Line segment joining the centre to any point on the circle. (6)

7. The triangle formed by the radii & the chord having length equal to radius is ..... triangle. (11)
9. Union of major & minor sector of a circle gives ..... of a circle. (4)
12. Union of the set of points of a circle & its interior is which region ? (8)
14. $\overline{AB}$ is a diameter of the circle. point p lies on one semi-circle are which point. Q lies on another semi-circle arc $\angle QAB \& \angle QPB$ are formed by the same $\overset{\frown}{QB}$ *if* $m\angle PAB = 50^0$, Them $m\angle AQP$ (2)
15. $\angle ABC$ is an angle inscribed in a semi-cirle are of $\odot$(o, r). ΔABC is isoceles & AB= $3\sqrt{2}$. what is the area of the circle ? (2)
17. if $\overline{AB}$ is a chord of the cicle with centre O, then ΔOAB is which type of triangle ? (9)
18. Angle subtended over which arc is half of the angle subtended at the centre ? (5)
19. A & B are two points on a circle with centre O & radius r. If length of $\overset{\frown}{AB}$ is ®r, then $\overset{\frown}{AB}$ is which type of arc ? (10)
21. If a line from the centre of a circle bisects the chord, then it is ..... to the chord. (13)
22. A ..... circle passes through three distinct non-collinear points. (6)
23. If opposite angles of a quadrilateral are supplementary, then the quadrilateral is ? (6)
27. Union of major arc & minor arc gives which parameter of circle ?
28. 50^0, 100^0, of 80^0 are the measures of angles of cyclic quadrilateral, then what about the measure of the fourth angle ?
29. If chords of the same circle are congruent, then their corresponding arcs are ? (9)
33. If two circles having centres P & Q are congruent, then what can you say about their radii ? (5)
35. A circle passes through the vertices of an equilateral ΔABC. What is the measure of the angle subtended by side $\overline{AB}$ at the centre of the circle ? (3)
37. In a cyclic □*ABCD*, $m\angle CAB = 45^0$ & $m\angle ABC = 100^0$, then is $m\angle ADB$ is ? (2)
39. □P*QRS* is cyclic quadrilateral, $m\angle SQR = 65^0$ m$\angle QPR = 30^0$, then find m$\angle QRS$ (2)

0	4	6	$\sqrt{6}$	2	8	1	3	4	7
2	1	5	$\sqrt{7}$	4	7	2	3	1	6
5	1	7	4	1	2	8	2	5	3
3	0	2	6	8	5	4	6	8	7
5	8	$\sqrt{30}$	2	$\sqrt{21}$	7	8	$\sqrt{14}$	0	4
3	6	7	4	2	5	6	8	3	7
2	4	0	3	5	1	2	0	1	2
1	8	4	0	8	4	$\sqrt{2}$	6	3	2
9	$\sqrt{3}$	2	7	$\sqrt{14}$	7	3	7	0	5
8	6	5	$\sqrt{4}$	4	8	$\sqrt{3}$	$\sqrt{7}$	2	4

1. For the $\square ABC$, semiperimeter is ..... where AB = 8cm, BC=6cm, AC=10 cm.
2. For a $\square^m$ ABCD, $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ and $\overleftrightarrow{BC} \parallel \overleftrightarrow{DA}$. If AB = 8cm and BC=10 cm, the perimenter of the $\square^m$ ABCD is ..... cm.
3. In ΔABC, $m\angle B = 90^0, AB = 3cm, BC = 2\,cm \text{ and } AC = 5\,cm$, then area of triangle = ... cm^2
4. In $\square ABC$, AB = 12 cm, BC = 8 cm, AC=10 cm, then area of triangle = ... cm^2
5. If the lengths of the sides of a triangle are 15cm, 15cm and 12cm, then area of the triangle is ..... cm^2
6. In $\square ABC$, $AB = 5cm,\ BC = 8cm \text{ and } AC = 9cm$, then its semi peimeter = ... cm.
7. The semiperimeter and area of the equilateral triangle having length of each side 6 units are .....
8. If the length of the sides of a triangle are in proportion 3:4:5 and the perimeter of the triangle is 120 meter, then area of the triangle = ...
9. If the length of the sides of a triangle are 6 cm, 4 cm and 2cm, then perimeter of triangle = ... cm.
10. If the lengths of the sides of a triangle are 6cm, 8 cm and 10 cm, then area of triangle = ... cm^2.
11. If the lengths of sides of a parallelogram are 13 cm and 10 cm and the lengths of one of its diagonal is 9 cm, then semi perimeter and area of parallelogram are .....
12. If the are of a rhombus is 100 cm^2 and the lenght of one of its diagonal is 8 cm, then find the length of the other diagonal.
13. If the lengths of the sides of a triangle are 8 cm, 11 cm and 13 cm, then area of the triangle is ..... cm^2
14. If the area of an equilateral triangle is $2\sqrt{3}\,cm^2$, then the length of each side of the triangle is ..... am.
15. In a square ABCD, length of each side is 7 cm. Then length of its diagonal is ..... cm.
16. If the lengths of ΔXYZ sides are 10 cm, 24 cm and 26 cm, the area of ΔXYZ = ... cm^2
17. If the lenghts of the sides of a triangle are in proportion 3:4:5 then the area of the triangle is ..... sq. unit where perimeter of the triangle is 144.
18. If the length of the base of a tiangle is 12 cm and the length of the altitude to that base is 8cm, then the area of the triangle is ..... cm^2.

Surface area and Volume



* Example :

Ans : 1 $6\ell^2(\downarrow)$

Across : ($\rightarrow$)

1. The surface area of a cuboid of 5cm x 4 cm x 3 cm is ..... cm^2. (2)
3. The lateral surface area of a cube is ..... (2)
4. The radius and the slant height of a cone are in the ratio 4:7. If its curved surface area is 792 cm^2,
   Its radius is ..... cm. (2)
5. The diameter of a 140 cm long roller is 80 cm. The area covered by roller in 600 complete revolution to level the ground is ..... m^2. (4)
7. Curved surface area of a cone is ..... (3)
9. Curved surface area of a ..... is ® rl. (4)
11. A ..... is a solid bounded by six rectangular plane regions. (6)
13. 2h (l + b) is a formula of a ..... surface area of a cuboid. (5)
14. A cuboid whose length, breadth and height are equal is called a ..... (4)
15. The four faces which meet the base of cuboid are called ..... faces. (7)

Down : ($\downarrow$)

1. The formula for finding the total surface area of cube is ..... (2)
3. Curved surface area of a cone is 308 cm^2, slant height ℓ = 14 cm, total surface area is ..... cm^2. (3)
4. The circumference of the base of a cone is 44 cm and its height is 3 cm ? its Volume is ..... cm^3. (3)
6. The formula for finding the curved surface area of cylinder is ..... (4)
8. Total surface area of solid ..... is $3\pi r^2$. (12)
9. Volume of ..... is $\pi r^2 h$.
10. 2 (lb + bh + hl) is a formula for finding the total ..... area of a Cuboid. (7)
12. l x b x h is ..... of cuboid. (6)
16. The set of all points in space, which are equidistant from a fixed point is called a ..... (6)

Q	P	R	I	M	A	R	Y	A	M	S	S
U	A	V	E	R	A	G	E	A	U	T	E
A	R	A	N	G	E	D	R	X	L	A	C
N	O	R	A	L	O	G	P	Q	T	T	O
T	B	B	I	M	O	D	A	L	I	I	N
I	U	X	Y	T	P	W	M	L	M	S	D
T	L	P	S	I	Z	E	E	N	O	T	A
A	O	I	P	M	N	A	D	R	D	I	R
T	H	R	E	E	T	V	I	Q	A	C	Y
I	B	A	R	A	R	S	A	Z	L	S	X
V	U	W	D	N	C	F	N	T	R	A	L
E	Q	U	A	L	I	T	A	T	I	V	E
Y	F	R	E	Q	U	E	N	C	Y	G	K
L	H	F	S	C	I	E	N	C	E	X	B
O	I	R	M	X	C	L	A	S	S	E	S

QUESTIONS

1. The plural form of the latin word “datum” is ..... (4)
2. ..... is the area of study dealing with the presentation, analysis and intrepretation of data. (10)
3. Statistics is the area of ..... (7)
4. Total number of classes in our school is ..... data. (7)
5. Total number of books in our library is ..... data. (9)
6. The observation of the given data expressed numerically is said to be a ..... data. (12)
7. The Observation of the given data expressed non-numerically in ..... form is said to be qualitative data. (11)
8. The difference between the largest obseration and the lowest observation is called the ..... of quantitative data. (5)
9. The runs scored by Yusuf Pathan in 10 innings are given as : 37, 52, 25, 18, 22, 30, 54, 11, 41, 47. The data in this form is called a ..... data. (3)
10. The number of students who have obtained certain number of marks is Called the ..... of these marks. (9)
11. If large amount of data converted into groups like: - 1-5, 6-10, 11-15, ..., 26-30 (Since our data is from 1 to 30) Then these groups are called ..... (7)
12. The ..... of the class - interval is called class - length.
13. The smallest number within the class limit is ..... class limit. (5)
14. The Largest number within the class limit is ..... class limit. (5)
15. There are ..... types of frequency distribution table. (5)
16. ..... Diagram is used for discrete grouped data. (3)
17. ..... diagram is used for discrete grouped data with classes. (9)
18. The average of the lower limit and the upper limit of a class is called the ..... value. (7)
19. The main objectives of statistical analysis is to obtain a measure of central tendency or ..... of the data. (7)
20. ..... is denoted by $\bar{x}$ (4)
21. ..... is denoted by M. (6)
22. ..... is denoted by Z. (4)
23. A data with exactly two modes is called a ..... data. (7)
24. A data one with more than two modes is called ..... data. (10)

PROBABILITY

1 P	R	2 O	B	3 A	B	I	L	I	T	Y	
4	5							6		7	
							8				
					9						
			14		11				12		
											13
			10		15						
											16
			17	18							
		19								20	
21						22			23		
		24								25	

Across : ($\rightarrow$)

1. The Study of ..... began initially with the chance-dependent games of gambling in mathematics. (11)
10. The probability of the event "The sun rises in the east" is ..... (3)
11. An ..... for an experiment is the collection of same outcome of the experinment. (5)
13. The probability of a month of january having 5 saturdays is ..... (1)
14. Symbol ..... is used for the total number of trials (1)
15. Empirical probability denoted by ..... of an event E. (1)
16. A probability of getting both heads when two balanced coins are tossed is ..... (1)
17. The probability of ..... event is one. (7)
19. The probability of getting number 5 on a balanced die is ..... (1)
21. The probability of having 5 Mondays in the month of February of a leap year is ..... (1)
24. The probability of a month of April having 5 Tuesdays is ..... (1)
25. The probability of one card, selected from a pack of 52 cards is a jack is ..... (1)

Down : ($\downarrow$)

1. An experimental approach is used to measure the chance of occurrances of particular ……. in an experiment.
3. A trial is an ..... which results in one or more outcomes. (6)
4. The probability of an ..... event is zero. (10)
5. An object is chosen at random means out of all object, object is selected without any pre-judice and ..... (12)
6. When we toss the coin it has equal chances of a head or a tail is a ..... coin. (8)
7. ..... fraction method is used to calculate the group data. (11)
8. Probability is an ..... Approch. (12)
9. The probability of getting 51 marks out of 50 marks. ..... (4)
12. Each toss of a coin is called a ..... (5)
18. The probability of ..... event lies between 'O' and '1' including 'O' and '1' (4)
20. The probability of scoring 105 marks in a test of 100 marks is ..... (1)
22. The probability of getting at least one head when two coins are tossed is ..... (1)
23. The probability of having 53 friday in a leap year is ..... (1)

7	4	1	5	2	1	•	7	5	0	1	0
3	9	•	2	4	1	•	6	9	8	6	•
8	•	1	4	3	0	4	9	5	2	1	0
2	8	5	7	$\bar{2}$	0	•	1	9	•	6	0
6	•	9	5	•	2	0	2	•	3	6	0
2	5	7	8	3	0	•	0	3	8	0	3
•	5	3	2	7	2	4	6	8	2	•	8
6	1	0	9	0	3	4	7	2	×	9	2
5	7	8	4	3	0	•	2	×	10^{-4}	7	6
9	5	7	2	0	4	5	7	$\therefore^{3}$	3	7	9
0	8	1	9	3	1	•	6	1	5	2	3
6	7	2	0	3	9	2	7	2	1	0	1
5	3	4	7	•	7	3	2	5	9	×	10^{5}
2	8	2	3	6	0	1	9	5	7	8	10^{-2}

* Example :

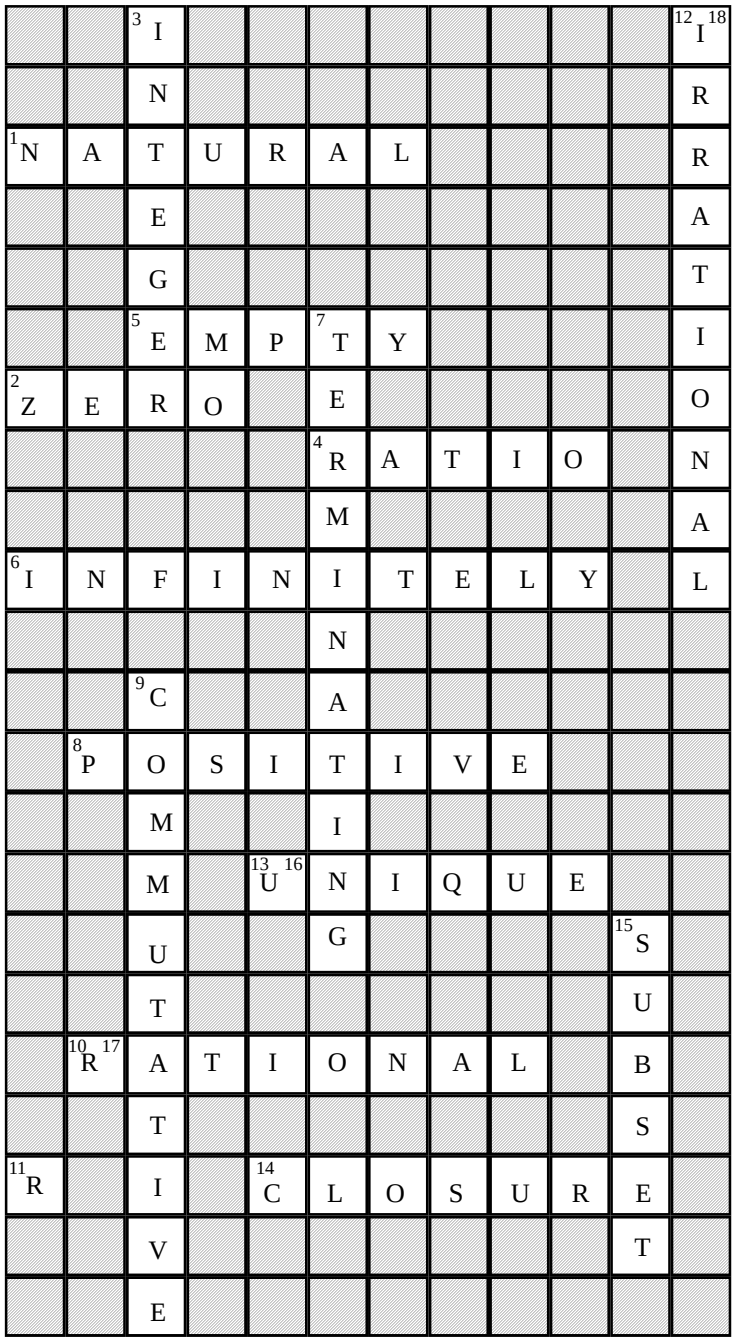
Ans. 1 ℓog 350 = <u>2.5441.</u>

Questions :

1. ℓog 350 = ... (6)
2. ℓog 456 = ... (6)
3. ℓog 3574 = ... (6)
4. antilog 2.3671 = ... (5)
5. antilog 5.3671 = ... (6)
6. $4.7484 + \bar{3}.5442$ = ... (6)
7. $\frac{1}{2}(\bar{4}.7405)$ = ... (6)
8. antilog $\bar{1}.3671$ = ... (6)
9. The decimal form of the number 8.97×10^4 is ..... (5)
10. The standard form of the number 9382 is ..... (7)
11. $\frac{14}{3}(1.8325)$ = ... (6)
12. $\bar{2}.3641 - \bar{3}.2044$ = ... (6)
13. $\frac{1}{5}(\bar{2}.4928)$ = ... (6)
14. antilog (0.2431) = ... (5)
15. ℓog (41.23) = ... (6)
16. The standard form of the number 0.00023821 is ..... (7)
17. The decimal form of the number 3.8269×10^{-4} is ..... (10)
18. antilog (4.7900) = ... (5)
19. ℓog (9.4891) = ... (6)
20. The standard form of the number 773259 is ..... (9)
21. The standard form of the number 0.03711 is ..... (7)

SET OPERATION

1 S		2 n	3 e				4 $\cup$		
e		u	5 v	e	n	n			
t		l	6 e	q	u	a	l		
		l	r				7 2	8 1	
9 A	C	B	y		10 $\varnothing$		11 3	6	9
12 X	$\in$	13 A			14 A^1		15 A	=	B
	16 X	U			$\cap$				
17 A	$\notin$	B			18 B^1	U	A^1		19 L
	20 A	$\cap$	B			21 G	A	T	E
22 d	i	S	j	o	i	n	t		G


3 I
12 I 18
N
R
1 N A T U R A L
R
E
A
G
T
5 E M P 7 T Y
I
2 Z E R O E
O
4 R A T I O
N
M
A
6 I N F I N I T E L Y
L
N
9 C
A
8 P O S I T I V E
M
I
M
13 U 16 N I Q U E
U
G
15 S
T
U
10 R 17 A T I O N A L
B
T
S
11 R I 14 C L O S U R E
V
T
E

1 1	•	$\overline{2}$	$\overline{7}$		2 7^{-3}		3 3^{-8}
				4 $2\,^{5}/_{6}$		5 21^{-2}	
6 3		7 4	8 2		9 9		10 13
	11 7		+		+		–
	12 0		$\sqrt{5}$		$\sqrt[6]{2}$		$\sqrt[2]{30}$
13 2		14 $^{16}/_{3}$		15 $^{35}/_{99}$		16 a^4	

POLYNOMIAL

		13 X^3					16 –	1	6	3	8	0				15 1
		+														1
		14 X^2	+	X	–	6										4
		–										Q 1				4
		4x			M							U				9
11 9		–		3 P	O	L	Y	N	O	M	I	A	L			
9		4			N							D				
1		4 B	I	N	O	M	I	A	L			R				
0					M				7 C			A			Z	
2					I		6 L		U			T 8	H	R	E	E
6			18 3	5 V	A	R	I	A	B	L	E	I			R	
9 17	9	7	5		L		N		I			C			0	
7		19 9	9	9	20 1		E		C							
3			1		0		A									
					7		10 R	E	M	A	I	N	D	E	R	
					1											
				12 1	0	9	1	4								

1. Coordinate
2. Point
3. Ordered
4. Subsets
5. Two
6. Horizontal
7. Vertical
8. Four
9. X
10. Y
11. Lower
12. Ordinate
13. Second
14. Quadrant
15. Negative
16. Origin
17. Angle
18. Interior
19. Third
20. Same

H	R	N	E	G	A	T	I	V	E
O	V	E	R	T	I	C	A	L	C
R	T	W	O	L	O	W	E	R	O
I	P	X	T	S	A	M	E	W	O
Z	I	N	T	E	R	I	O	R	R
O	R	D	E	R	E	D	R	F	D
N	A	N	G	L	E	G	I	O	I
T	H	I	R	D	B	Y	G	U	N
A	P	O	I	N	T	S	I	R	A
L	U	W	S	E	C	O	N	D	T
S	U	B	S	E	T	S	B	K	E
K	O	R	D	I	N	A	T	E	R
Q	U	A	D	R	A	N	T	S	G

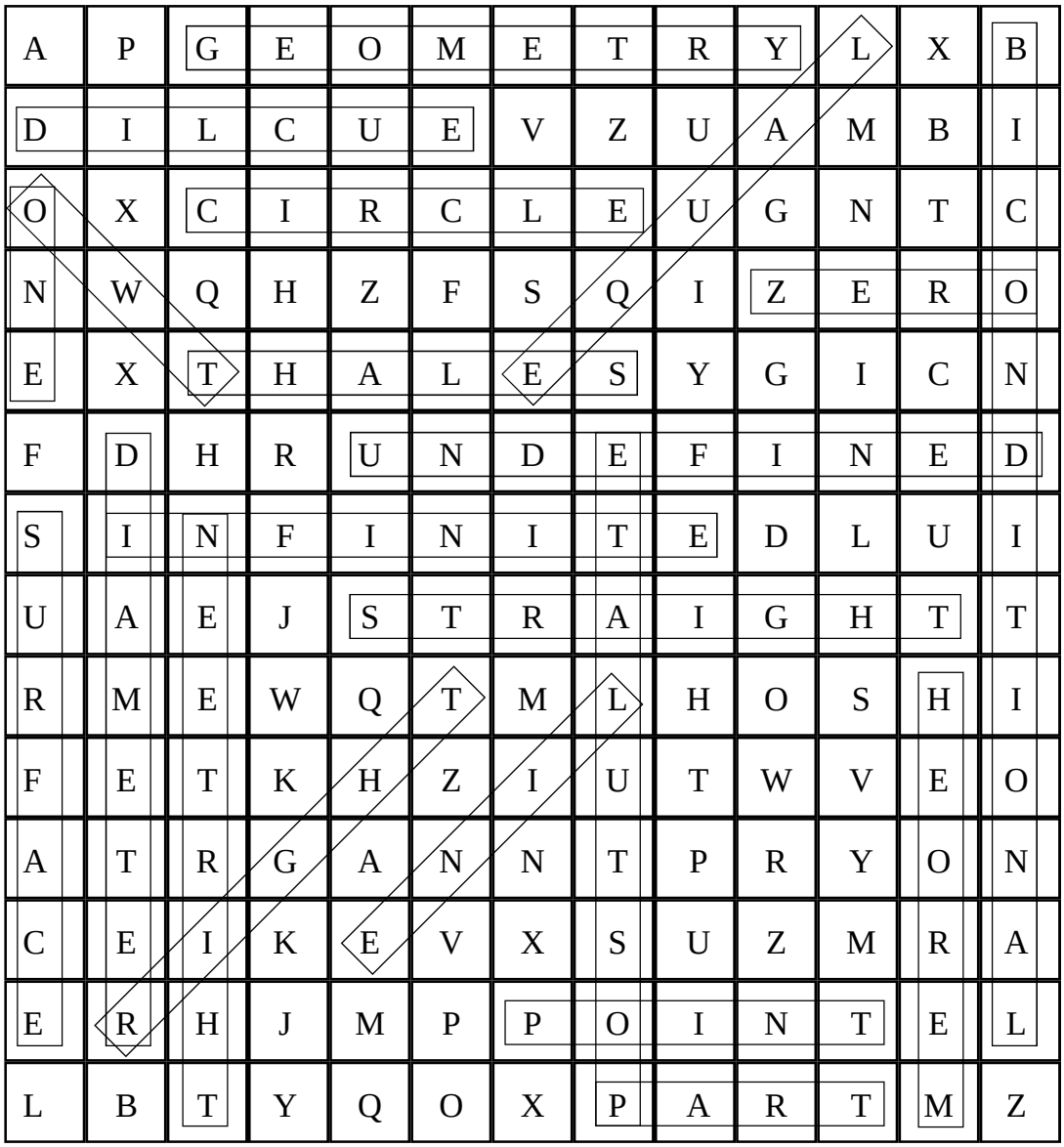
Linear equation in two variables

1. a
2. $x - 2y + 0 = 0$
3. $a=5,\ b = +6,\ c = 0$
4. NOT
5. TWO
6. (1,0), (3,3), (5,6)
7. (2,0), (2,5), (2,10)
8. INFINITELY
9. YES
10. NOT
11. NOT
12. $K = -1$
13. $K = 2$
14. COLLINEAR
15. $K = 5/6$
16. ORIGIN
17. 45

Linear equation in two variables

A	B	R	-3	X	–	2	Y	+	O	D	F
2	$^{5}/_{6}$	A	6	Y	–	3	Y	–	O	B	C
R	O	E	2	1	O	B	4	+	5	6	7
A	a	N	B	A	T	8	9	X	3	3	8
B	T	I	÷	N	N	O	T	Z	5	6	9
N	W	L	X	O	D	C	N	O	T	6	7
O	A	L	Z	Y	2	E	F	X	Z	2	0
T	W	O	V	+10	H	Y	G	W	4	5	Z
M	P	C	+1	-2	I	X	E	+	-a	X	-10
L	K	÷	J	n	O	W	+	S	W	X	+2
-1	N	Q	U	20	2	10	V	Y	Z	–	56
R	I	N	F	I	N	I	T	E	L	Y	÷
Y	–	2	X	+	O	R	I	G	I	N	V

1. Geometry
2. Thales
3. Thales
4. Diameter
5. Equal
6. Right
7. Euclid
8. Thirteen
9. Three
10. Two
11. One
12. Zero
13. Point
14. Line
15. Straight
16. Surface
17. Undefined
18. Part
19. Circle
20. Infinite
21. Theorem
22. Postulate
23. Conditional
24. Biconditional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D I L C U E V Z U A M B I
O X C I R C L E U G N T C
N W Q H Z F S Q I Z E R O
E X T H A L E S Y G I C N
F D H R U N D E F I N E D
S I N F I N I T E D L U I
U A E J S T R A I G H T T
R M E W Q T M L H O S H I
F E T K H Z I U T W V E O
A T R G A N N T P R Y O N
C E I K E V X S U Z M R A
E R H J M P P O I N T E L
L B T Y Q O X P A R T M Z

Primary Concepts of Geometry-1

1. Point
2. Line
3. Collinear
4. Congruent
5. Ray
6. Coplanar
7. Skew Lines
8. Paralled
9. Angle
10. Right
11. Acute
12. Obtuse
13. Complementary
14. Supplementary
15. Adjacent
16. Opposite
17. Linear pair
18. Parallel
19. Corresponding
20. Alternate
21. Exterior
22. Interior
23. Transversal

Primary Concepts of Geometry-1

C	O	P	L	A	N	A	R	M	Z	A	N	G	L	E
X	O	C	N	U	T	N	E	U	R	G	N	O	C	Q
T	T	R	A	N	V	E	R	S	A	L	I	B	O	L
N	J	S	R	L	T	V	Z	U	Y	S	M	T	M	T
E	L	I	N	E	X	T	E	R	I	O	R	U	P	N
C	S	T	R	U	S	I	W	B	D	T	P	S	L	E
A	E	R	O	V	X	P	C	M	V	O	U	E	E	A
J	N	S	I	O	P	P	O	S	I	T	E	J	M	R
D	I	Q	R	J	S	Q	W	N	T	X	K	V	E	P
A	L	T	E	R	N	A	T	E	D	R	W	S	N	A
F	W	M	T	U	H	V	W	G	Z	I	T	U	T	I
K	E	U	N	R	T	C	O	L	L	I	N	E	A	R
R	K	R	I	G	H	T	X	K	S	R	V	G	R	K
E	S	U	P	P	L	E	M	E	N	T	A	R	Y	M
A	C	U	T	E	L	P	A	R	A	L	L	E	L	I

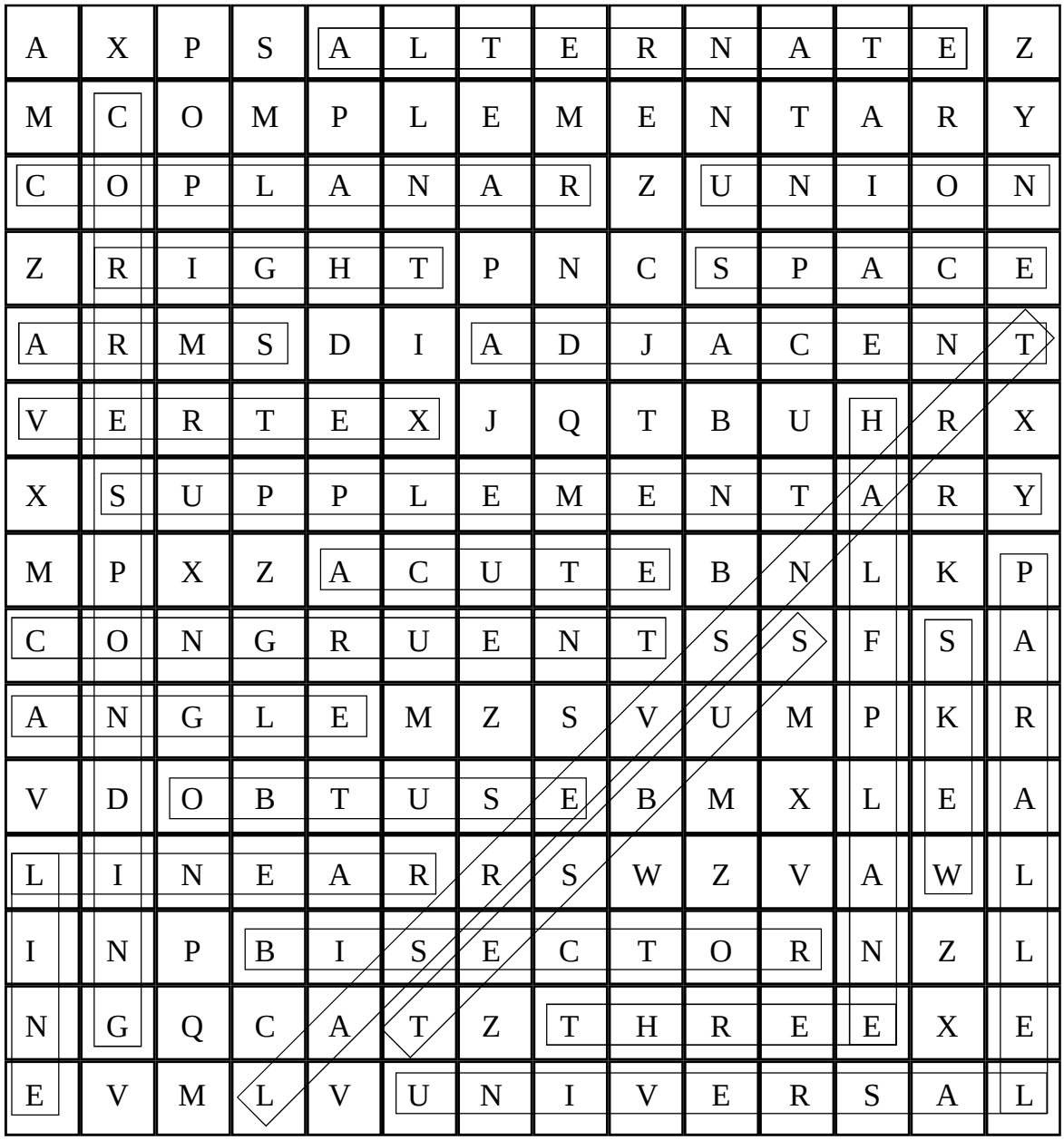
Primaty Concept of Geometry-1

1 D	O	2 T		5 S	U	6 B	S	E	7 T
		W				E			H
	3 F	O	U	R		T			R
						W			E
12 I			8 B			E			E
N			I		10 Z	E	R	O	
F			S			N			17 D
I			E						I
N			C						S
9 I	N	I	T	I	A	L			T
T			O						A
E		16 O	R	I	G	I	N		N
						14 E			C
15 C					21 O	N	E		E
O		18 S				D		23 L	
N		19 P	A	20 R	A	L	L	E	L
G		A		A		E		N	
R		C		Y		S		G	
U		E				S		T	
E						L		H	
N			22 T			Y			O 4
T			W						N
		23 P	O	I	N	T			E

Primary Concepts of Geometry-2

1. Universal
2. Space
3. Three
4. Coplanar
5. Subset
6. Skew
7. Half planes
8. Parallel
9. Line
10. Angle
11. Vertex
12. Arms
13. Right
14. Acute
15. Obtuse
16. Complementary
17. Supplementary
18. Congruent
19. Adjacent
20. Linear
21. Bisector
22. Transversal
23. Corresponding
24. Alternate
25. Union
26. Obtuse

Primary Concepts of Geometay-2



TRIANGLE

						1 O	2 B	T	U	S	E											
							I															
3 O				4 F	A	L	S	E														
P							E															
P							C		5 S													
O							6 T	R	I	A	N	7 G	L	8 E								
S							O		D			R		Q								
9 I	N	10 T	E	R	I	O	R		E			11 E	Q	U	I	L	A	12 T	E	R	A	L
T		H										A		I				W				
E		R										T		13 A	C	D		O				
		E						14 A	15 C	U	T	E		N								
		E										R		G								
														U								
											16 A	N	G	L	E	S						
														A								
									17 L	I	N	E	A	R								

				1 3	6
		2 1	8	0	
5 1	2	0			
0		3 8	0		
0					

1. Four
2. Four
3. Two
4. Common
5. Empty
6. Two
7. Plane
8. Subset
9. Three
10. 360
11. One
12. 126
13. Parallelogram
14. Right
15. Congruent
16. 108
17. Square
18. 70
19. Bisect
20. Opposite
21. Rhombus
22. Rectangle
23. Trapezium
24. $5\sqrt{2}$
25. 20
26. 90
27. 70

Quadrilaterals

R	E	C	T	A	N	G	L	E	C	T	S	C
1	0	8	B	I	S	E	C	T	O	F	Q	O
M	7	W	T	S	F	M	P	S	N	R	U	M
P	A	R	A	L	L	E	L	O	G	R	A	M
E	M	P	T	Y	W	F	A	P	R	X	R	O
L	R	I	G	H	T	X	N	3	U	T	E	N
K	H	W	R	K	H	T	E	6	E	W	C	7
7	O	F	O	U	R	C	2	O	N	O	9	O
O	M	U	I	Z	E	P	A	R	T	Q	E	X
Q	B	1	2	6	E	N	5	$\sqrt{2}$	T	W	N	R
L	U	O	P	P	O	S	I	T	E	F	O	W
W	S	U	B	S	E	T	R	F	O	U	R	P
A	F	L	K	C	O	N	G	R	U	E	N	T

Area of Parallelogram & Triangle

		2 T													
1 P	A	R	A	L	L	E	L	O	G	R	A	M			
A		6 I													
R		A	R	E	A										
A		N													
L		G						5 1/2	*	A	D	*	B	C	
L		U						*							
E		3 L	E	N	G	T	H	B	R	7 E	A	4 D	T	H	
L		A						A		Q		I			
L		R						S		U		S			
I								E		I		J			
N								*		L		O			
E								A		A		I		8 R	
10 S	I	D	E	S				L		T		N		H	
						12 3		T		E		11 T		O	
						3		I		R		S	A	M	E
					13 9	6		T		A		E		B	
		16 1	14 2	0	0			U		L		T		U	
		0	15 4	0				D						S	
	17 2	0	5					9 E	M	P	T	Y			

Area of Parallelogram & Triangle

1 C	2 I	R	C	L	E		3 S		4 C	H	O	5 R	D			6 8	0		7 E	
	N						E					A							Q	
	F				8 A	R	C		9 A			D							U	
10 R	I	G	H	T			T		R		11 B	I	S	E	12 C	T	S		I	
	N						O		E			U			I				L	
13 D	I	A	M	E	T	E	R		A			S		14 4	R				A	
	T												15 9	O	C				T	
	16 E	Q	U	17 I	D	I	S	T	A	N	T		®		U		18 M		E	
19 S				20 S	E	M	I	C	I	R	C	L	E		L		A		R	
E		21 P		O								22 U			A	23 C	J		A	
M		E		24 S	U	P	P	L	E	M	E	N	T	A	R	Y	O		L	
I		R		25 C	O	N	C	E	N	T	R	I	C			C	R			
C		P		26 E	X	T	E	R	I	O	R	Q		27 P		L		28 1		
I		E		L		29 C						U		E		I		30 3	√5	
R		N		E		O						E		R		C	1 31	0	0	
C		D		S		N								I						
L		I				G			32 C	I	R	C	U	M	C	I	R	C	L	E
E		C				34 R	E	C	T	A	N	G	L	E						Q
		U				U								T				1 35		U
		L			36 S	E	G	M	E	N	T			E			37 3	38 2		A
		A				N								R		39 8	40 5	0		L
		R		41 I	N	T	E	R	I	O	R					5				

Heron's formula

1. 12
2. 36
3. 3
4. 15, $15\sqrt{7}$
5. $18\sqrt{21}$
6. 11
7. 9, $9\sqrt{13}$
8. 600
9. 12
10. 24
11. 16, $24\sqrt{14}$
12. 25
13. $8\sqrt{30}$
14. $2\sqrt{2}$
15. $7\sqrt{2}$
16. 120
17. 864
18. 48

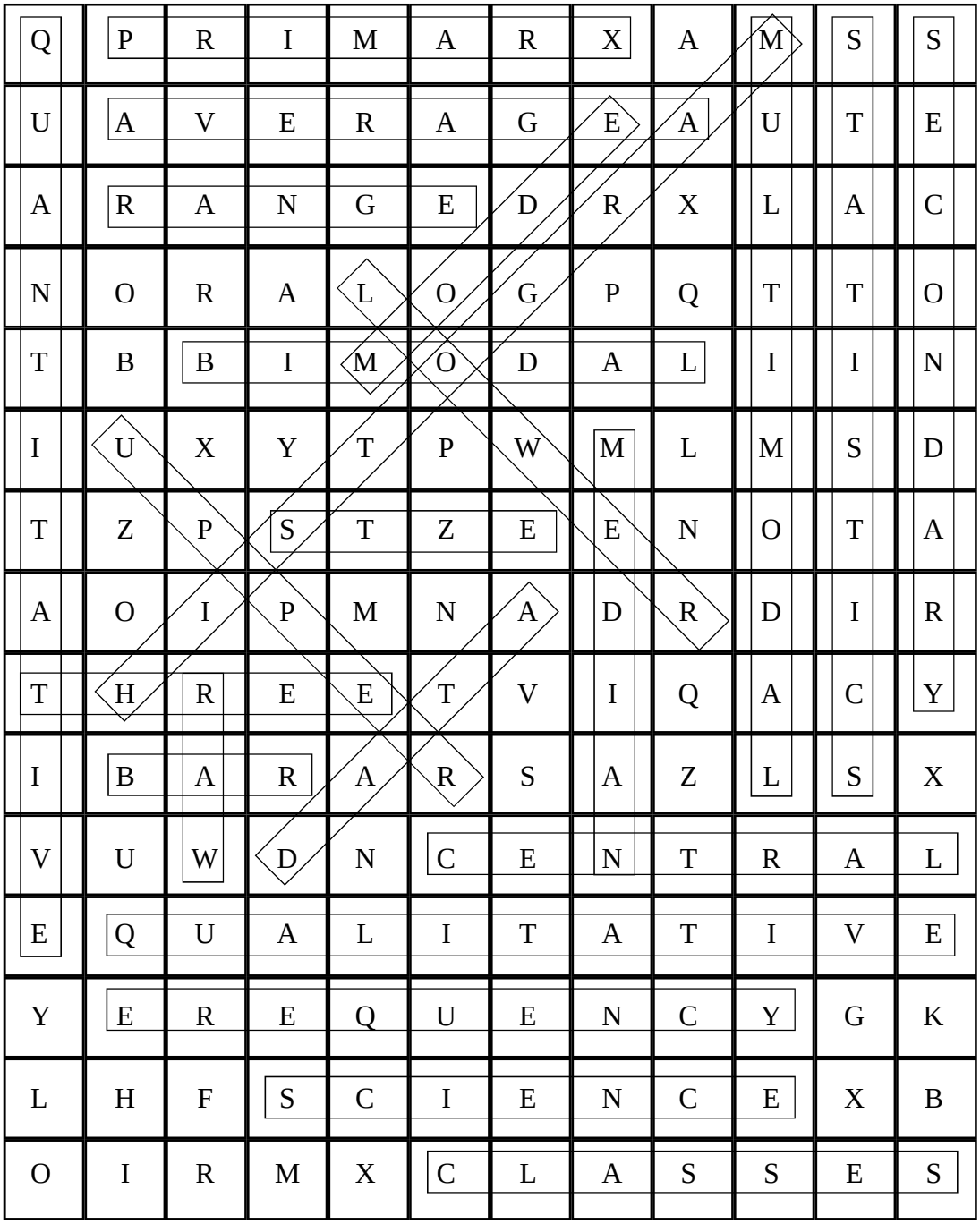
Heron's formula

0	4	6	$\sqrt{6}$	2	8	1	3	4	7
2	1	5	$\sqrt{7}$	4	7	2	3	1	6
5	1	7	4	1	2	8	2	5	3
3	0	2	6	8	5	4	6	8	7
5	8	$\sqrt{30}$	2	$\sqrt{21}$	7	8	$\sqrt{14}$	0	4
3	6	7	4	2	5	6	8	3	7
2	4	0	3	5	1	2	0	1	2
1	8	4	0	8	4	$\sqrt{2}$	6	3	2
9	$\sqrt{3}$	2	7	$\sqrt{14}$	7	3	7	0	5
8	6	5	$\sqrt{4}$	4	8	$\sqrt{3}$	$\sqrt{7}$	2	4

Surface Area and Volume

4 1	2		3 4			1 6				8 h
3			6		3 4	2 ℓ^2		9 c	o	n	e
5 2	1	1	2					y			m
					10 s			ℓ			i
	9	4		11 c	u	b	o	i	d		16 s
					r			n			p
			12 v		f			d			h
		13 t	o	t	a	l		e			e
			l		c			r			r
		14 c	u	b	e				6 2		e
			m						7 ®	r	l
15 l	a	t	e	r	a	l			r		
									h		

1. Data
2. Statistics
3. Science
4. Primary
5. Secondary
6. Quantitative
7. Qualitative
8. Range
9. Raw
10. Frequency
11. Classes
12. Size
13. Lower
14. Upper
15. Three
16. Bar
17. Histogram
18. Central
19. Average
20. Mean
21. Median
22. Mode
23. Bimodal
24. Multi-modal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U A V E R A G E A U T E
A R A N G E D R X L A C
N O R A L O G P Q T T O
T B B I M O D A L I I N
I U X Y T P W M L M S D
T Z P S T Z E E N O T A
A O I P M N A D R D I R
T H R E E T V I Q A C Y
I B A R A R S A Z L S X
V U W D N C E N T R A L
E Q U A L I T A T I V E
Y E R E Q U E N C Y G K
L H F S C I E N C E X B
O I R M X C L A S S E S

1 P	R	2 O	B	3 A	B	I	L	I	T	Y	
4 I	5 P	U		C				6 B		7 C	
M	R	T		T			E	A		U	
P	E	C		I			X	L		M	
O	C	O		O	9 Z		P	A		M	
S	O	M	10 O	N	11 E	V	E	N	12 T	U	
S	N	E			R		R	C	R	L	13 $^3/_7$
I	D	S			O		I	E	I	A	
B	I						M	D	A	T	
L	T		14 N		15 P(E)		E		L	I	
E	I						N			V	
	O						T			E	$^1/_4$ 16
	N		17 C	18 E	R	T	A	I	N		
		19 1/6		A			L			O	
21 $^1/_7$				C		22 $^3/_4$			23 $^2/_7$		
		24 2/7		H						24 $^1/_3$	

Logarithm

A-1 2.5441
A-2 2.6590
A-3 3.5532
A-4 232.9
A-5 232900
A-6 2.2926
A-7 $\bar{2}.3703$
A-8 0.2329
A-9 89700
A-10 9.382×10^{3}
A-11 8.5517
A-12 1.1597
A-13 $\bar{1}.6986$
A-14 1.750
A-15 1.6152
A-16 2.382×10^{-4}
A-17 0.00038269
A-18 61660
A-19 0.9772
A-20 7.73259×10^{5}
A-21 3.711×10^{-2}

7	4	1	5	2	1	•	7	5	0	1	0
3	9	•	2	4	1	•	6	9	8	6	•
8	•	1	4	3	0	4	9	5	2	1	0
2	8	5	7	$\bar{2}$	0	•	1	9	•	6	0
6	•	9	5	•	2	0	2	•	3	6	0
2	5	7	8	3	0	•	0	3	8	0	3
•	5	3	2	7	2	4	6	8	2	•	8
6	1	0	9	0	3	4	7	2	×	9	2
5	7	8	4	3	0	•	2	×	10^{-4}	7	6
9	5	7	2	0	4	5	7	10^{3}	3	7	9
0	8	1	9	3	1	•	6	1	5	2	3
6	7	2	0	3	9	2	7	2	1	0	1
5	3	4	7	•	7	3	2	5	9	×	10^{5}
2	8	2	3	6	0	1	9	5	7	8	10^{-2}