

Employable skill development:-

Unit-1: QUANTITATIVE ABILITY -III

Algebra, Power, Squares and Indices, Inverse, Logarithms, Equations, Progressions, Functions and Graphs, Perimeter, Geometry, Co-ordinate geometry, Direction sense, Logical Connectives, Venn Diagrams.

Unit-II: QUANTITATIVE ABILITY -IV

Puzzles, Physics, Base Conversion, Trigonometry, Divisibility, Series, Simple Equations, Simplification, Quadratic Equations.

Unit-III: VERBAL REASONING -II

Sentence Correction and Completion, Para-Jumbles, cloze passage, Vocabulary, Voices and Forms of speech, Multi-dimensional arrangement.

Unit-IV: NON VERBAL REASONING

The Embedded figure, Logical Games, Incomplete Pattern, Missing letters, Data arrangement, Mathematical Orders, Inferred meaning.

Unit-V: LINGUISTICS SKILLS -III

Sentence Improvement, Subject-Verb Agreement, Speech and Voices, Preposition and Conjunctions, Selection Words, Comprehension Ordering.

TEXT BOOK:

1) Rajesh Yarma, "Fast Track Objective Arithmetic," Arihant Pub (U-I & II)

REFERENCE BOOK:

1) R.V. Praveen, "Quantitative Apt & Reasoning" ARI pub (U-I & II)

UNIT-I : QUANTITATIVE ABILITY-III

①

ALGEBRA:-

ALGEBRAIC EXPRESSIONS :-

- (i) Monomial - only one term (e.g) $x, 2y, -3y$
- (ii) binomial - 2 terms (e.g) $x+2y, 2x+3y$ etc
- (iii) Polynomial - more than 3 terms (e.g) $2x+3y+4z$ etc.

ADDITION AND SUBTRACTION OF POLYNOMIALS :-

Ex-1:- Find the sum of

$$\begin{array}{r} 4x^2 + 3y - 2z \\ 3x^2 - 4y + 5z \\ (+) 5x^2 + 6y - 7z \\ \hline 12x^2 + 5y - 4z \end{array}$$

Ex-2:- Find the difference of

$$\begin{array}{r} 4x^2 + 4y + 5z \\ (-) 2x^2 - 3y + 4z \\ \hline x^2 + 7y + z \end{array}$$

EQUATIONS WITH ONE VARIABLE :-

(e.g) $4x + 9 = 0$

$$4x + 9 = 0$$

$$4x = -9$$

$$\boxed{x = -9/4}$$

Practice:-

1) $6(m+3) = 0$

2) $7(m+6) = 5$

3) $9(m-1) = -1$

4) $4(x-2) = 3$

5) $4m - 8 = 4$

6) $24m + 24 = 0$

7) $6(m-1) = 6$

8) $4x = 20$

9) $x + 2x = -15$

10) $12 = 3x - 6$

QUADRATIC EQUATION:-

An expression of form $ax^2+bx+c=0$ has degree (2) and roots 2.

(e.g) $1x^2+3x+4=0$.

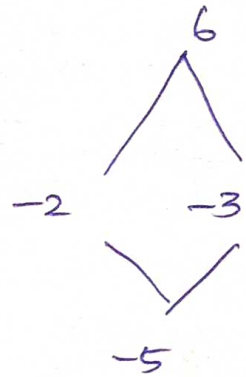
SOLVING QUADRATIC EQUATIONS:-

(i) By Factor Method.

(e.g) $x^2-5x+6=0$

$(x-2)(x-3)=0$

$x=2, x=3$ are the roots



(ii) By Formula Method.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

(e.g) $x^2-5x+6=0$

$ax^2+bx+c=0$

$a=1, b=-5, c=6$.

$$x = \frac{5 \pm \sqrt{(-5)^2 - 4(1)(6)}}{2(1)}$$

$$= \frac{5 \pm \sqrt{25-24}}{2}$$

$$= \frac{5 \pm \sqrt{1}}{2}$$

$$= \frac{5 \pm 1}{2}$$

$$= \frac{5+1}{2}, \frac{5-1}{2}$$

$$= \frac{6}{2}, \frac{4}{2}$$

$$\boxed{x=3, 2}$$

$\therefore x=2$ and $x=3$ are the roots.

Practice

2

$$1) 2x^2 + 11x + 5 = 0$$

$$2) x^2 - 5x + 4 = 0$$

$$3) 3x^2 + 4x - 3 = 0$$

$$4) 2x^2 - 6x + 7 = 0$$

$$5) x^2 + 2x - 15 = 0$$

ALGEBRA FORMULA :- [SQUARE FORMULA]:

$$1) (a+b)^2 = a^2 + b^2 + 2ab$$

$$2) (a-b)^2 = a^2 + b^2 - 2ab$$

$$3) (a+b)(a-b) = a^2 - b^2$$

$$4) (x+a)(x+b) = x^2 + (a+b)x + ab$$

$$5) (a+b+c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ac$$

$$6) (a-b-c)^2 = a^2 + b^2 + c^2 - 2ab + 2bc - 2ac$$

Practice

$$1) (2x + 3y)^2$$

$$2) (4x - 5y)^2$$

$$3) (2x + 8y)(2x - 8y)$$

$$4) (a+3)(a+4)$$

$$5) (3a - 4b - 5c)^2$$

ALGEBRA FORMULA :- [CUBE FORMULA]

$$1) (a+b)^3 = a^3 + b^3 + 3ab(a+b)$$

$$2) (a-b)^3 = a^3 - b^3 - 3ab(a-b)$$

$$3) a^3 - b^3 = (a-b)(a^2 + b^2 + ab)$$

$$4) (a+b+c)^3 = a^3 + b^3 + c^3 + 3(a+b)(b+c)(c+a)$$

$$5) x^3 + y^3 + z^3 - 3xyz = (x+y+z)(x^2 + y^2 + z^2 - xy - yz - zx)$$

$$6) a^3 + b^3 = (a+b)(a^2 + b^2 - ab)$$

Practice

- 1) $(2x+3y)^3$
- 2) $(5m+2n)^3$
- 3) $(2a)^3 - (3b)^3$
- 4) $(3l+4y+5m)^3$
- 5) $(2a)^3 + (5b)^3$

Indices and surds:-

1) Formula:

$$1) a^x = a^y \Leftrightarrow x=y.$$

$$2) a^x \cdot a^y = a^{x+y}$$

$$3) \frac{a^x}{a^y} = a^{x-y}$$

$$4) a^{-x} = \frac{1}{a^x}$$

$$5) (a^x)^y = a^{xy}$$

$$6) a^x b^x = (ab)^x$$

$$7) a^0 = 1$$

$$8) a^1 = a$$

Practice

- 1) $3^2 \times 3^4 \times 3^8$
- 2) $6^{15} \div 6^{10}$
- 3) $7^x + 7^2$
- 4) $(5^2)^3 \div 5^3$
- 5) $2^5 \times 5^5$

$$6) (5^2)^3 \div 5^3$$

$$7) a^4 \times b^4$$

$$8) (3^4)^3 \div (3^4)^2$$

$$9) 3^0$$

$$10) 2^1$$

EQUATIONS:-

- (i) Elimination Method
- (ii) Substitution Method
- (iii) Cross Multiplication Method

Method-I:-

$$\begin{array}{r} 1) \ 2x + y = 11 \\ \quad 3x - y = 9 \\ \hline 5x = 20 \\ x = 20/5 \\ \boxed{x = 4} \end{array}$$

Sub, $x=4$ in eqn (1),

$$\begin{array}{l} 2(4) + y = 11 \\ 8 + y = 11 \\ y = 11 - 8 \\ \boxed{y = 3} \end{array}$$

Method-II:-

$$1) \ 2x + y = 11 \\ 3x - y = 9$$

From eqn (1),

$$\boxed{y = 11 - 2x}$$

Sub, y value in eqn (2)

$$\begin{array}{l} 3x - (11 - 2x) = 9 \\ 3x - 11 + 2x = 9 \\ 5x - 11 = 9 \\ 5x = 9 + 11 \\ 5x = 20 \\ x = 20/5 \end{array}$$

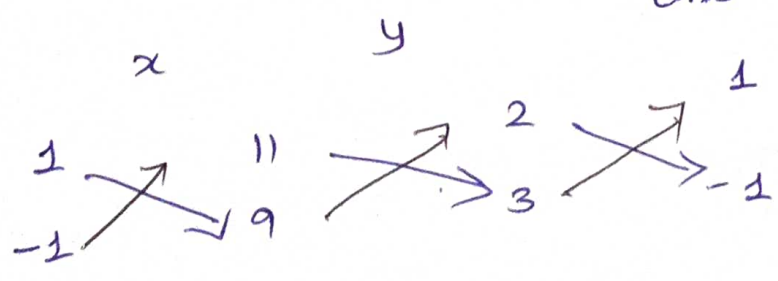
$$\boxed{x = 4}$$

Sub, x value in 'y' eqn.

$$\begin{array}{l} y = 11 - 2(4) \\ = 11 - 8 \\ \boxed{\therefore y = 3} \end{array}$$

Method-III:-

$$\begin{array}{l} 2x + y = 11 \\ 3x - y = 9 \end{array}$$



$$\begin{array}{l} \frac{x}{9 - (-11)} = \frac{-y}{33 - 18} = \frac{1}{-2 - (13)} \\ \frac{x}{9 + 11} = \frac{-y}{5} = \frac{1}{-5} \\ \frac{x}{20} = \frac{1}{-5}; \frac{y}{5} = \frac{1}{-5} \end{array}$$

$$\frac{x}{(-11) - (-9)} = \frac{4}{-3(-2)}$$

$$\frac{x}{-20} = \frac{1}{-5}$$

$$\frac{x}{20} = \frac{1}{5}$$

$$x = 20/5$$

$$\boxed{x = 4}$$

$$\frac{y}{18 - (+33)} = \frac{1}{-3-2}$$

$$\frac{-y}{15} = \frac{1}{-5}$$

$$\frac{y}{15} = \frac{1}{5}$$

$$y = 15/5$$

$$\boxed{y = 3}$$

Progressions:- (i) Arithmetic progressions
(ii) Geometric Progressions

Arithmetic Progressions:- (+, -)

General form:- $a, a+d, a+2d, \dots$

Here 'a' - First term,

'd' - difference.

difference is always same. $d = t_2 - t_1$
 $d = t_3 - t_2$

To find t_n :-

$$t_n = a + (n-1)d$$

(e.g) 1, 2, 3, 4, 5, ...

$$a = 1, d = 3 - 2 = 1$$

To find 50th term,

$$t_{50} = 1 + (50-1)d$$

$$= 1 + 49$$

$$\boxed{t_{50} = 50}$$

To calculate Sum of 'n' terms:-

1) $S = \frac{n}{2} [2a + (n-1)d]$

2) $S = \frac{n}{2} [a + l]$

3) $S = \frac{n}{2} (n+1)$

Practice:-

1) 12, 16, 20, 24 Find a_{10} ?
(or) t_{10}

2) 5, 6.75, 8 Which term is 20.75?

3) How many terms of the AP:
24, 21, 28 So that Sum is 78?

4) If $S_n = 400$; $a = 5$, find 'n'.
 $l = 45$

5) Find the sum of first 22 terms of an A.P in
which $d = 7$ and 22nd term is 149.

Geometric Progression:- (\times, \div)

Formula:-

1) Series, (t_1) (t_2) (t_n)
 $a, ar, ar^2, \dots, ar^{n-1}$

2) $d = t_2/t_1$
(or)
 $d = t_3/t_2$

3) $S_n = a + ar + ar^2 + \dots + ar^{n-1}$

$S_n = \frac{a[r^n - 1]}{[r - 1]}$ if $r > 1$

and $S_n = \frac{a[1 - r^n]}{(1 - r)}$ if $r < 1$

Practice :-

(5)

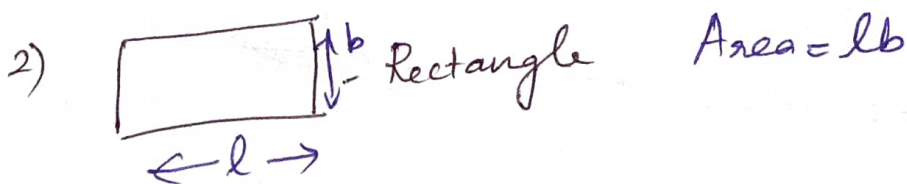
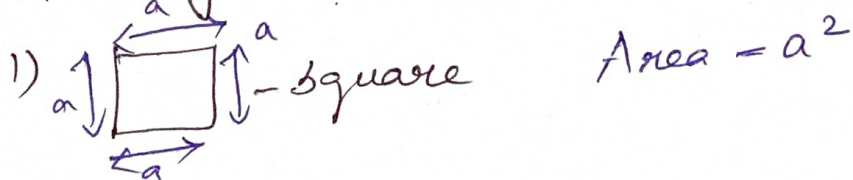
- 1) If $a=10$; $r=3$, find first 3 terms of G.P
- 2) Find Sum of 10, 30, 90, 270, 810.
- 3) If 2, 4, 8, ... is the G.P, find 10th term
- 4) Check whether the given sequence is G.P
27, 9, 3, ...
- 5) What is the 12th term of the sequence
4, -8, 16, -32, ...?

Perimeter:-

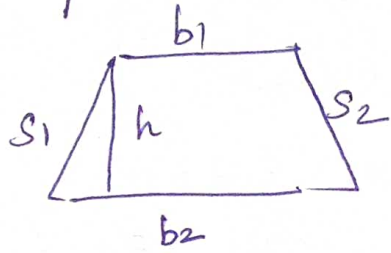
Formula :-

- 1) Perimeter of Square = $4a$
- 2) Perimeter of triangle = $a+b+c$
- 3) " " Rectangle = $2(l+b)$
- 4) " " Parallelogram = $2(b+h)$
- 5) " " Trapezoid = $a+b+c+d$
- 6) " " Kite = $2(a+b)$
- 7) " " Rhombus = $4a$
- 8) " " Hexagon = $6a$.

Geometry:-



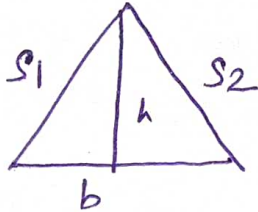
4) Trapezoid



$$\text{Area} = \frac{1}{2} h(b_1 + b_2)$$

$$P = s_1 + s_2 + b_1 + b_2$$

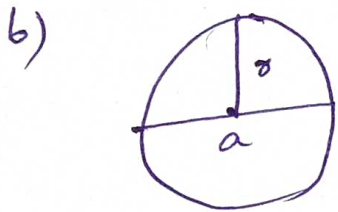
5) Triangle



$$A = \frac{1}{2} bh$$

$$P = s_1 + s_2 + b$$

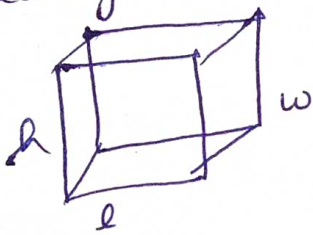
Circle



$$A = \pi r^2$$

$$\text{Circumference} = 2\pi r$$

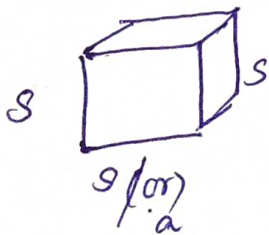
7) Rectangular Solid



$$V = l \times w \times h$$

$$S = 2lh + 2wh + 2lw$$

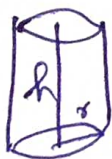
8) Cube



$$V = s^3 \text{ (or) } a^3$$

$$\text{Surface area} = 6s^2 \text{ (or) } 6a^2$$

9) cylinder



$$V = \pi r^2 h$$

$$S = 2\pi r h + 2\pi r^2$$

11) Cone



$$V = \frac{1}{3} \pi r^2 h$$

$$S = \pi r l$$

$$(l = \sqrt{r^2 + h^2})$$

10) Sphere



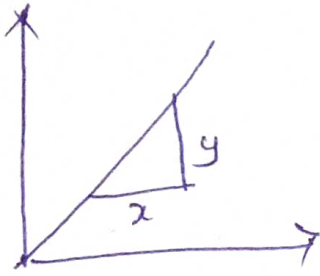
$$V = \frac{4}{3} \pi r^3$$

$$S = 4\pi r^2$$

Co-ordinate Geometry:-

6

1)



$$\text{slope} = \frac{dy}{dx}$$

(m)

2) Slope Intercept form, $y = mx + c$

3) Point slope form, $(y - y_1) = m(x - x_1)$

4) Midpoint formula, $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

5) Distance formula, $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

b) slope, $m = \frac{y_2 - y_1}{x_2 - x_1}$

Examples:-

1) If slope = 3, find Slope Intercept form.
y-intercept = 2,

(b)

Formula, $y = mx + c$.

$$\boxed{y = 3x + 2}$$

2) If the points are (x_1, y_1) and (x_2, y_2) find distance.

$$\text{Formula: } \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\text{Distance} = \sqrt{(3 - 1)^2 + (4 - 2)^2}$$

$$= \sqrt{(2)^2 + (2)^2} = \sqrt{4 + 4} = \sqrt{8} \text{ units}$$

3) If the points are (x_1, y_1) $(5, 4)$ and (x_2, y_2) $(7, 8)$ find slope.

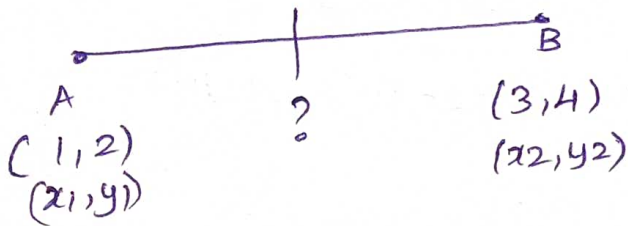
Formula:

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\text{slope} = \frac{7 - 5}{8 - 4} = \frac{2}{4} = \frac{1}{2}$$

Ans: $\frac{1}{2}$

4)



Find Mid-point:

$$\text{Mid-point} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$= \left(\frac{1 + 3}{2}, \frac{2 + 4}{2} \right) = \left(\frac{4}{2}, \frac{6}{2} \right)$$

Ans: Mid-point = $(2, 3)$

5) If slope is 5, Point is $(3, 4)$ find egn.

Formula:

$$m = 5, (x_1, y_1) = (3, 4)$$

$$(y - y_1) = m(x - x_1)$$

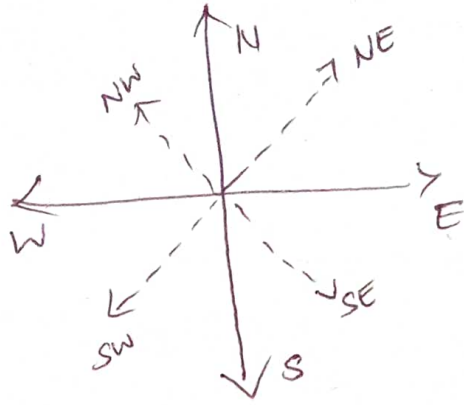
$$(y - 4) = 5(x - 3)$$

$$y - 4 = 5x - 15$$

$$y - 4 - 5x + 15 = 0$$

Ans: $-5x + y + 11 = 0$

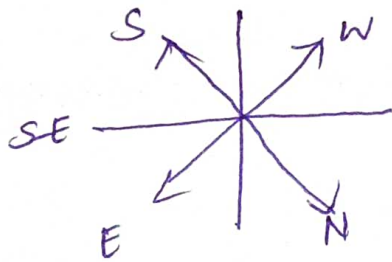
Direction sense Test:-



Practice:-

1) If South-East becomes North, North-East becomes West and so on. What will West become?

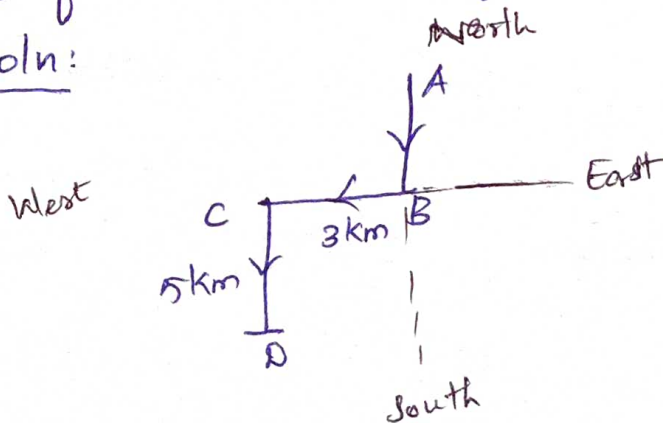
Solution:-



Ans:- South East

2) A man walks 5 km toward South and then turns to the right. After walking 3 km he turns to the left and walks 5 km. Now in which direction is he from the starting place?

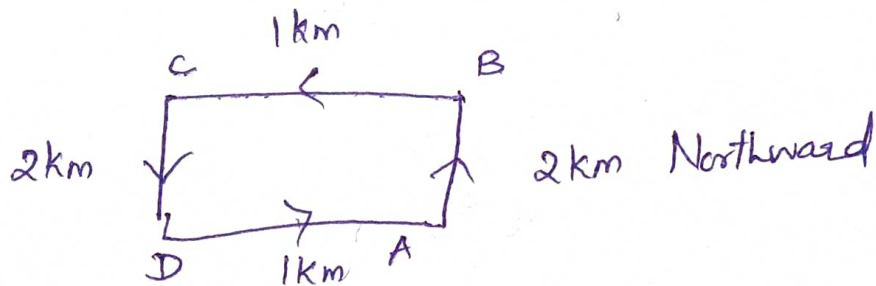
Soln:



Ans: South West

3) A boy rode his bicycle Northward, then turned left and rode 1 km and again turned left and rode 2 km. He found himself 1 km west of his starting point. How far did he ride northward initially?

Solu:



Venn diagrams:-

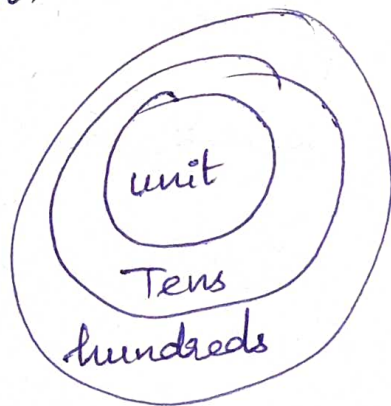
Rule 1: If all the words are of different groups, then they will be shown as



Rule 2

If first word is related to second word and second word is related to third word.

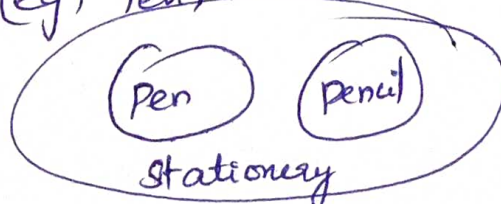
Unit, tens, hundreds



Rule-3:-

If 2 different items are completely related to third item,

(eg) Pen, Pencil, Stationery



Logical Connectives:-

1) If then

(E.g) 1) If it rains, then ground gets wet
2) Raman will pass, if he works hard.

2) Only if / when

(E.g) 1) I will meet you only if I come to Delhi
2) Only if Rohit runs fast, he will catch the train.

3) If and only if

(E.g) 1) If and only if he clears the pre-exam, he will get selected

2) Rahul will eat the fruit if and only if it is an apple

4) Unless

(E.g) 1) Unless I'm mistaken, John's house is the second on the left.

2) Unless Virat is the Captain, India will lose the match.

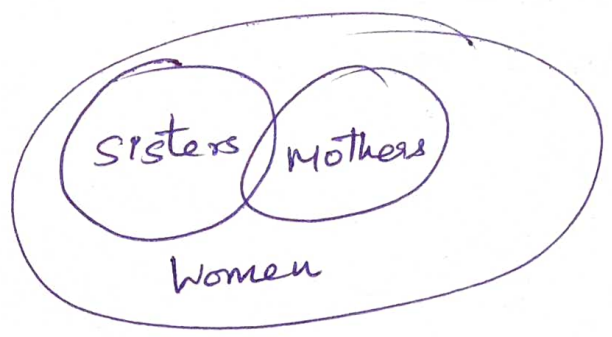
5) Either or

(E.g) 1) I drink either green tea or juice

2) Either Raman is intelligent or Ram is foolish.

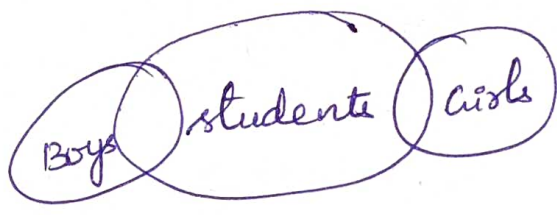
Rule-4

If there is some relation between these 2 items and these 2 items are completely related to 3rd item.



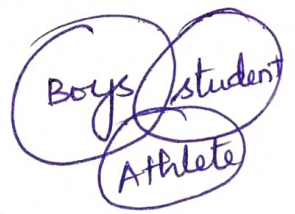
Rule-5:

Two items are related to 3rd to some extent and first 2 items are totally different.



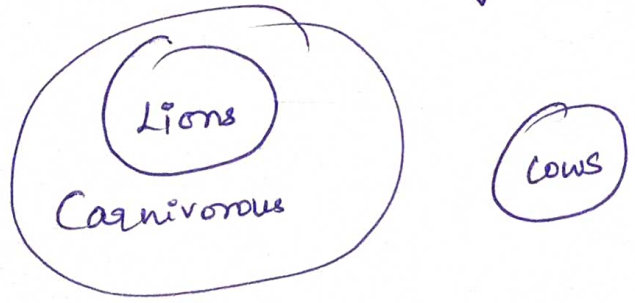
Rule-6

All 3 are related to one another but to some extent not completely



Rule-7

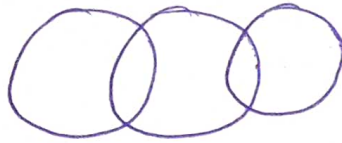
2 items are related to each other completely and 3rd is entirely different from first two.



Practice

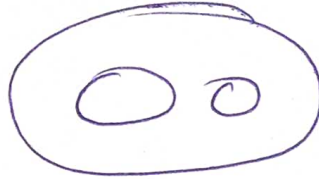
1) Travelers, Train, Bus

Ans



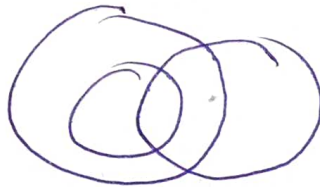
2) Profit, Dividend, Bonus

Ans

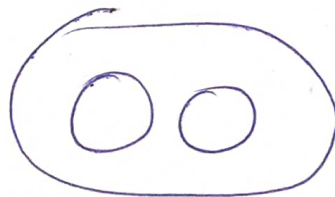


3) Women, Mother, Engineers

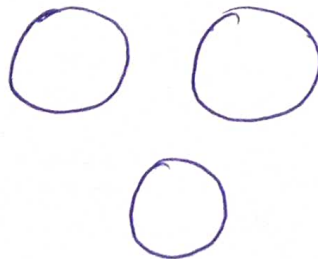
Ans



4) Factory, Product, Machinery



5) Author, Lawyer, Singer



_____ x _____

Practice

- 1) she went to the market and bought some eggs
- 2) I want to go now.
- 3) There is a mouse underneath the piano.
- 4) Masons build houses
- 5) That was a difficult question
- 6) Although she is poor, she is happy.
- 7) Have we bought enough chairs?
- 8)

Ans:-

- 1) went, bought - Adverb
- 2) now - adverb
- 3) underneath - preposition
- 4) Mason, house - Noun
- 5) difficult - adj
- 6) Although - Conj
- 7) enough - adjective

Simple Grammar

UNIT - II : QUANTITATIVE ABILITY - IV

①

BASE CONVERSION:

General representation of number systems

- (i) Decimal Number - Base 10
- (ii) Binary Number - Base 2
- (iii) Octal Number - Base 8
- (iv) Hexadecimal Number - Base 16

Number System Conversion Table:-

Binary No	Octal No	Decimal No	Hexadecimal No
0000	0	0	0
0001	1	1	1
0010	2	2	2
0011	3	3	3
0100	4	4	4
0101	5	5	5
0110	6	6	6
0111	7	7	7
1000	8	8	8
1001	9	9	9
1010			10
1011			11
1100			12
1101			13
1110			14
1111			15

Number System Conversion methods:

- (i) Binary to Decimal
- (ii) Decimal to Binary
- (iii) Octal to Binary
- (iv) Binary to Octal
- (v) Binary to Hexadecimal
- (vi) Hexadecimal to Binary

(i) BINARY TO DECIMAL:-

Example: Convert $(1101)_2$ into decimal no.

$$\begin{array}{r} 1 \quad 1 \quad 0 \quad 1 \\ \begin{array}{l} \text{---} \text{---} \text{---} \text{---} \\ \text{---} \text{---} \text{---} \text{---} \\ \text{---} \text{---} \text{---} \text{---} \\ \text{---} \text{---} \text{---} \text{---} \end{array} \\ \begin{array}{l} 1 \times 2^3 = 8 \\ 0 \times 2^2 = 0 \\ 1 \times 2^1 = 2 \\ 1 \times 2^0 = 1 \\ \hline 11 \end{array} \end{array}$$

$$\boxed{\text{Ans:- } (1101)_2 = (11)_{10}}$$

(ii) BINARY TO OCTAL:

Ex: $(85)_{10}$ into octal no.

$$\begin{array}{r} 8 \overline{) 85} \\ \underline{8} \\ 0 \\ 8 \overline{) 105} \\ \underline{8} \\ 2 \\ 8 \overline{) 125} \\ \underline{8} \\ 4 \\ 8 \overline{) 145} \\ \underline{8} \\ 6 \\ 8 \overline{) 165} \\ \underline{8} \\ 8 \\ 8 \overline{) 185} \\ \underline{8} \\ 0 \end{array}$$

Ans:- 0125

$$\boxed{(85)_{10} \rightarrow (0125)_8}$$

(iii) BINARY TO HEXADECIMAL:

Ex: $(1101010)_2 \rightarrow (?)_{16}$

$$\begin{array}{r} \begin{array}{l} \text{---} \text{---} \text{---} \text{---} \\ \text{---} \text{---} \text{---} \text{---} \\ \text{---} \text{---} \text{---} \text{---} \\ \text{---} \text{---} \text{---} \text{---} \\ \text{---} \text{---} \text{---} \text{---} \\ \text{---} \text{---} \text{---} \text{---} \\ \text{---} \text{---} \text{---} \text{---} \end{array} \\ \begin{array}{l} 0 \times 2^0 = 0 \\ 1 \times 2^1 = 2 \\ 0 \times 2^2 = 0 \\ 1 \times 2^3 = 8 \\ 0 \times 2^4 = 0 \\ 1 \times 2^5 = 32 \\ 1 \times 2^6 = 64 \\ \hline (106)_{10} \end{array} \end{array}$$

$$\boxed{\text{Ans: } (1101010)_2 \rightarrow (106)_{10}}$$

(IV) DECIMAL TO BINARY:

Ex: $(156)_{10} = (?)_2$

2		156	
2		78	-0
2		39	-0
2		19	-1
2		9	-1
2		4	-1
2		2	-0
		1	-0

Ans:-
 $(156)_{10} = (10011100)_2$

(V) OCTAL TO BINARY:

Ex: $(205)_8$

2	0	5	
			$5 \times 8^0 = 5$
			$0 \times 8^1 = 0$
			$2 \times 8^2 = 128$
			<u>133</u>

Ans:
 $(205)_8 = (133)_2$
 $= (001 \ 011 \ 011)_2$

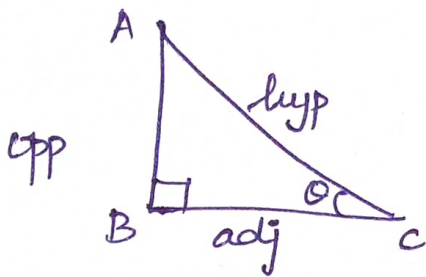
(VI) HEXADECIMAL TO BINARY:

EX: $(4FA)_{16} = (?)_2$

4	F	A
4	15	10
=	=	=
0100	1111	1010

Ans: $(4FA)_{16} = (0100 \ 1111 \ 1010)_2$

TRIGONOMETRY:-



In right angle triangle ABC,

$$(i) \sin \theta = \frac{\text{opposite side}}{\text{hypotenuse}}$$

$$(ii) \cos \theta = \frac{\text{adjacent side}}{\text{hypotenuse}}$$

$$(iii) \tan \theta = \frac{\text{opposite side}}{\text{adjacent side}}$$

Other Formulas from basic formula:

$$(iv) \operatorname{cosec} \theta = \frac{1}{\sin \theta} = \frac{\text{hyp}}{\text{opp}}$$

$$(v) \sec \theta = \frac{1}{\cos \theta} = \frac{\text{hyp}}{\text{adj}}$$

$$(vi) \cot \theta = \frac{1}{\tan \theta} = \frac{\text{adj}}{\text{opp}}$$

Angle values:-

	0°	30°	45°	60°	90°
$\sin \theta$	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
$\cos \theta$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
$\tan \theta$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	∞ (undefined)
$\operatorname{cosec} \theta$	∞	2	$\sqrt{2}$	$\frac{2}{\sqrt{3}}$	1
$\sec \theta$	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	∞
$\cot \theta$	∞	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0

DIVISIBILITY RULES:-

(i) $\div 2$

Ones place digit = 0, 2, 4, 6, 8 (even)

(E.g) 1248

(ii) $\div 3$

Sum of all the digits must be $\div 3$

(E.g) 369 = 3+6+9 = 18

Here $18/3$.

(iii) $\div 4$

Last 2 digits must be $\div 4$

(E.g) 1624, here 24 is $\div 4$

(iv) $\div 5$

Ones place digit must be 0 (or) 5.

(v) $\div 6$

Divisible by 2 and also by 3.

(vi) $\div 8$

Last 3 digits must be divided by 8

(e.g) 16328 $\Rightarrow \frac{328}{8} \checkmark$

(vii) $\div 9$

~~Last~~ Sum of all digits must be divided by 9 (or) it must be divided by 3.

(viii) $\div 10$

Last digit must be '0'.

SERIES:- (Number Series) (+, -, ×, %)

(E.g) ① 2, 1, $\frac{1}{2}$, $\frac{1}{4}$, ?

Ans: $\frac{1}{8}$

② 7, 10, 8, 11, 9, 12, ?

+3 -2 +3 -2 +3 -2

Ans: $12 - 2 = 10$

③ 21, 9, 21, 11, 21, 13, 21, ?

+2 +2 +2

Ans: $13 + 2 = 15$

④ 3, 4, 7, 8, 11, 12, ?

+1 +3 +1 +3 +1

Ans:- $12 + 3 = 15$

⑤ 31, 29, 24, 22, 17, ... ?

-2 -5 -2 -5 -2

Ans: $17 - 2 = 15$

Alphabet Series:

Ex:

4 K% R T 3 E P # A 7 B 9 D I Q @
2 8 V U © H J 5 F 1 % 6 M W

1) How many such consonants are there in the above arrangement, each of which is immediately preceded by a number but not immediately followed by letter?

Ans:- (3) - 4K%, 7B9, 5F1

2) Which of the following is the third to the left of the tenth from the left end in the above arrangement? Ans:- E

3) Four of the following five are alike in a certain way based on their positions in the above arrangement and so form a group. Which is the one that does not belong to the group? ④

Ans: TP%

4) How many such symbols are there in the above arrangement, each of which is immediately followed by a letter but not immediately preceded by a consonant?

Ans:- One

5) Which of the following is the second to the right of fifth from the left end?

Ans:- E

Simple Equations:-

1) $a + 12 = 15$
Ans $a = 15 - 12$
 $a = 3$

2) $S - 3 = -4$
Ans:
 $S = -4 + 3$
 $S = -1$

3) $P * 4 = 8$
 $P = 8/4$
 $P = 2$

4) $y \div 28 = 7$
 $y = 7 \times 28$
Ans: $y = 196$

5) $m + 0 = 5$
 $m = 5 - 0$
Ans: $m = 5$

Simplification:

Rule: **BODMAS**

B - Bracket

O - of

D - Division

M - Multiplication

A - Addition

S - Subtraction.

1) $\sqrt{1521} \div 3 \times 12$

$$\sqrt{1521} \div 3 = 39 \div 3 = 13$$

$$13 \times 12 = 156$$

Ans: -156

2) $(672 \div 24) \times 18 + 153 - 345 = ?$

$$= \frac{672}{24} \times 18 + 153 - 345$$

$$= 28 \times 18 + 153 - 345$$

$$= 504 + 153 - 345$$

$$= 657 - 345$$

Ans = 312

3) $\frac{3}{4}$ of 26% of 850 = ?

$$= \frac{3}{4} \times \frac{26}{100} \times 850$$

$$= \frac{3315}{20} = 165.75$$

Ans

165.75

4) $144 \div 8 \div ? = 9$

$$\frac{144}{8} = 9$$

$$\frac{144}{8} \times \frac{1}{x} = 9$$

$$\frac{1}{x} = 9 \times \frac{8}{144}$$

$$\frac{1}{x} = \frac{72}{144}$$

$$x = \frac{144}{72}$$

Ans: x = 2

5) ? % of 590 - 11.8 = 236

$$\frac{x}{100} \times 590 - 11.8 = 236$$

$$\frac{x}{100} \times 590 = 236 + 11.8$$

$$\frac{59x}{10} = 247.8$$

$$x = \frac{247.8 \times 10}{59}$$

Ans: - x = 42

Sentence Correction

Rules

Rule 1:- The articles a/an/the are not used with words such as (Kind of / sort of / type of) etc.

Example 1:

Incorrect - What type of the books you like to read?

Correct - What type of books do you like to read?

Example 2:

Incorrect - What sort of an insect is that?

Correct - What sort of insect is that?

Rule 2: Sentences with words 'each of' 'one of' 'none of' is always followed by a plural form of the noun.

Example 1: For

Incorrect: Each of the player performed well in the match.

Correct:- Each of the players performed well in the match.

Example 2:-

Incorrect:- None of the student scored above 90% in boards

Correct:- None of the students scored above 90% in boards.

Rule 3:- The collective noun takes a plural verb when not used as a single unit.

Example 1:-

Incorrect:- The resources was divided based on its expertise

Correct:- The resources were divided based on their expertise

Rule 4:- Use Present Continuous tense rather than simple present tense, when the recurring action is problematic.

Example 1:-

Incorrect:- she always hits me without any reason.

Correct:- she is always hitting me without any reason.

Rule 5:- If, in a sentence, 2 action clauses are to take place in the future, use simple present tense for conditional clause and simple future tense for other clause.

Example 1:-

Incorrect:- The moment she will enter the room, we will start singing the birthday song.

Correct:- The moment she enters the room we will start singing the birthday song.

Rule 6:- For impossible past conditions, use past perfect and for its likely results use would + have + 3rd form of verb. Past perfect is used for impossible past conditions.

Example:-

Incorrect:- If Jacob would have called me, I would have picked him up from the airport.

Correct:- If Jacob had called me, I would have picked him up from the airport.

Practice Questions:-

- 1) The employees of this Company demand higher salaries for a very long period of time.
- 2) The train is expected to arrive between 12pm to 1pm.
- 3) If the Cab would have started on time, she would have reached office on time.
- 4) The renowned Birla's family is divided on the property.
- 5) What kind of a car do you want?

Ans:

- 1) The employees of this Company have been demanding higher salaries for a very long time.
- 2) The train is expected to arrive between 12pm & 1pm.
- 3) If the Cab had started on time, she would have reached on time.
- 4) The renowned Birla family is divided on the property.
- 5) What kind of car do you want?

PARAJUMBLES:-

Example 1:

- (A) On their income as long as
- (B) Mutual funds are not taxed.
- (C) in the internal Revenue code
- (D) they comply with requirements established.

Ans:-

BADC.

Practice 1:-

- (A) Walmart or some other foreign retail chain
- (B) in the interests of India's Consumers and farmers
- (C) FDI in retail must be allowed not because
- (D) wants it, but because it is

Ans:-

CADB

Practice 2:-

- (A) food security because
- (B) for the majority of the rural poor
- (C) Agricultural production is important for
- (D) It is a source of income.

Ans:-

CADB

Practice 3:-

- (A) in the Bangalore city of India
- (B) amongst the most impressive
- (C) as well as the most magnificent buildings
- (D) Vidhana Soudha Courts.

Ans: DBCA

cloze test:-

Tips:-

- i) Take a quick glance on the passage
- (ii) Look for option which aptly fits with the context of the passage
- (iii) Eliminate options in case Confused
- (iv) Link the sentences while answering
- (v) Understand the tone of the passage.

Example 1:-

Earth, our home, is the 3rd planet from the sun. It's the only a known to have an atmosphere containing free oxygen, oceans of water on its surface and of course life.

The fifth-largest planet of the solar system is the Earth. It is smaller b the four gas giants.

Earth has a diameter of roughly 8,000 miles and is c because gravity pulls matter into a ball.

71% of the Earth's surface is covered with water. About a fifth of Earth's atmosphere consists of oxygen, produced by d.

- | | | | |
|-----------|--------|-----------|-------------------|
| a) Planet | b) For | c) oval | d) Animals |
| Moon | then | Round | humans |
| Satellite | than | Square | living beings |
| Surface | there | Venus | Plants |
| Life | on | disrupted | none of the above |

Practice 1:-

Around the world, forests are being a at the rate of about 13 million hectares a year and deforestation accounts for an estimated 17-20% of all global emissions. In addition, forests and other terrestrial carbon sinks play a b role in preventing runaway climate change, soaking up a full of 2.6 Gt. of atmospheric carbon every year. The destruction of forests, therefore, not only emits carbon - a staggering 1.6 Gt. a year, which severely c forest capacity to absorb emissions from other sources - but also drastically d the amount of forested land available to act as a carbon sink in the future.

a.

1. ended
2. ~~destroyed~~
3. Extinct
4. killed
5. wasted

- b. 1. Tough
2. Important
3. ~~B~~ Vital
4. Biggest
5. Effective

- c. 1. Affects
2. Diminishes
3. Increases
4. Alternates
5. ~~I~~ Impairs

d.

1. Plagues
2. ~~D~~ Develops
3. Reduces
4. Shortens
5. Influences.

PARTS OF SPEECH:- (8)

1) NOUN:-

It refers to a name a person, place, thing

Ex:-

- (i) Brazil is beautiful this time of year.
- (ii) His love of music really shows

(ii) PRONOUN:-

It takes the place of nouns to simplify speech and writing.

Ex:-

- i) She is the smartest kind in the class.
- (ii) George took the book from him.

(iii) Verbs:-

Verbs express action or a state of being.
Called action verbs.

Non-Action Verbs:-

It represent a state of being, need, sense (or) preference.

Ex:-

- (i) Let's walk to the park.
- (ii) Janani lives in Mexico.

(iv) Adverb:-

It modify a verb, relating to time, place, manner, cause, degree (or) circumstance.

Ex:-

- (i) Joe grumpily got out of bed.
- (ii) Sara ran very quickly to school.
- (iii) That's quite expensive.

5) Adjectives:-

It adds an attribute to a noun being modified.

Example

- (i) The sleepy bear hibernated all winter.
- (ii) It's a long drive, but it's worth the trip.
- (iii) Should I buy the blue jeans?

(vi) Conjunctions:-

It is used to connect words, phrases and clauses such as and, but, yet, so, therefore, because etc.

Ex (i) Go to the store and buy some milk.

(ii) You will need to study all night if you want to pass tomorrow's test.

(vii) Interjections:-

They are used as exclamations to show feelings.

Ex:

(i) Bah, who cares what they think anyway?

(ii) If Cody asked me out on a date, gosh, that would make my day.

(iii) I spilled the coffee everywhere. Oops!

(viii) Prepositions:-

It is used to indicate relationship between noun and pronoun.

Ex:-

(i) Between you and me, I wouldn't trust Sandy

(ii) The coffee shop is across the street.