



UPSR

2010

MATHEMATICS

SEMINAR

MasterMind
Training Academy



UPSR
MATHS

Paper1

40 objectives
1 hour

Paper 2

20 subjectives
40 minutes

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Forecast Year 2010

UPSR Math

BAB		2001		2002		2003		2004		2005		2006		2007	
		K1	K2	K1	K2	K1	K2	K1	K2	K1	K2	K1	K2	K1	K2
Nombor Bulat		2	2	2	2	3	2	3	2	2	1	1	1	2	1
Penambahan		–	1	–	–	–	–	1	1	–	–	–	–	–	–
Penolakan		–	–	–	1	–	1	–	–	–	–	1	–	–	–
Pendaraban		1	–	–	1	–	1	–	–	1	–	2	–	–	1
Pembahagian		–	1	1	1	1	–	1	–	1	–	–	–	1	–
Operasi Bergabung		2	1	3	2	3	1	2	2	2	1	1	2	2	2
Pecahan		5	2	4	2	4	3	4	2	2	3	4	2	4	2
Perpuluhan		5	2	4	2	2	1	3	1	4	1	3	1	3	2
Wang		5	1	4	2	3	2	4	3	4	2	4	1	5	2
Peratus		3	1	3	1	1	1	2	1	4	2	4	3	1	1
Masa dan Waktu		2	3	4	1	4	1	4	1	3	2	3	2	3	3
Ukuran Panjang		1	1	3	1	4	1	4	–	2	–	1	1	2	1
Timbangan Berat		1	1	3	1	3	2	2	2	2	3	2	2	3	–
Isi Padu Cecair		2	1	2	1	2	1	3	1	2	1	4	–	3	2
Ruang	Bentuk Dua Matra	6	2	4	2	5	2	4	2	6	3	3	2	2	1
	Bentuk Tiga Matra											2	1	3	1
Purata		2	1	1	–	1	1	2	2	3	1	2	2	4	1
Perwakilan Data		3	–	2	–	4	–	2	–	2	–	3	2	2	2
Jumlah		40	20	40	20	40	20	40	20	40	20	40	20	40	20

2010	
P1	P2
2	1
-	-
-	-
1	-
1	-
2	2
4	2
3	2
5	1
3	1
3	3
1	1
2	1
3	1
5	3
3	2

Are you well prepared?

1. HOT TOPICS



2. PRACTISE,
PRACTISE
PRACTISE,

3. KNOW IMPORTANT



FAMOUS TOPICS



1. FRACTIONS

32.8

67

2. MONEY

9.20



3



8.67

4 3. DECIMALS

4. DATA HANDLING

543
99

5. TIME

A MUST-HAVE
QUESTION
IN PAPER 1

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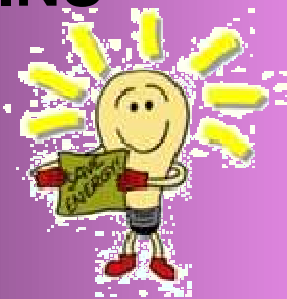
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TIPS

WHOLE NUMBERS

WE ALL KNOW THAT ONE MILLION IS A **BIG** NUMBER

BUT IN EXAM, MANY OF YOU FORGET HOW MANY DIGIT IT CONTAINS

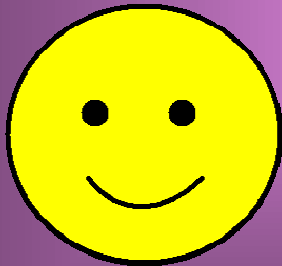


JUST REMEMBER

THIS:

MILLION

1 0 0 0 0 0 0



THERE ARE **7** LETTERS IN THE WORD MILLION,

THEREFORE; THERE ARE **7** DIGITS IN A MILLION!

T
I
P
S

FACT

50% OF UPSR QUESTIONS ARE SET BASED ON DIAGRAMMS

PRACTISE MORE QUESTIONS WITH DIAGRAMMS

ALWAYS READ THE QUESTION FIRST TO
LOOK FOR THE MAIN INFO BEFORE YOU
READ THE DATA GIVEN IN THE
DIAGRAM!

↗ **ALWAYS!!!**

The Most Important Info!!

20 students attended a UPSR seminar.

80%
Paying
attention

15% Trying to
pay attention

5% Fell
asleep

How many students fell asleep
during the seminar?

Students that fell asleep

$$\frac{5}{100} \times 20 \text{ students}$$

1

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TIPS



FOR QUESTIONS THAT INVOLVE UNITS LIKE g, kg, cm, mm, m, km, minutes, hours etc;

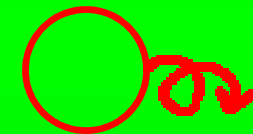
ALWAYS **CHANGE THE UNITS FIRST** AS REQUIRED BY THE QUESTION.



The cupid in the diagram weighs 24kg.

Its bow and arrow is $\frac{1}{4}$ times the cupid.

Find the total mass of both the cupid and the bow and arrow, in g.



1st step : Change 24 kg into 24000 g

Therefore; **Cupid = 24000 g**

2nd step : Find the mass of bow & arrow

Bow & arrow = $\frac{1}{4} \times 24000$ g

6000 g

**Total = 24000 g + 6000 g
= 30000 g**

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TIPS

Always change mixed numbers into improper fractions before you proceed to calculate them to avoid making mistakes.

$$\begin{aligned} & 1\frac{1}{4} + 2\frac{1}{8} + 1\frac{1}{2} \\ = & \frac{5}{4} + \frac{17}{8} + \frac{3}{2} \\ = & \frac{10}{8} + \frac{17}{8} + \frac{12}{8} \\ = & \frac{39}{8} \quad \text{or} \quad 4\frac{7}{8} \end{aligned}$$

Even though the fractions can be added easily, but you might make mistakes if you don't change them into improper fractions!



SAFE



CORRECT



EFFECTIVE

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PMR MATHS

Paper 1

(40 objective questions)

1 hour 15 mins , 40 marks

Paper 2

(20 subjective questions)

1hr 45 mins , 60marks

10 HOT TOPICS

1. Lines & Angles
2. Polygons
3. Solid Geometry
4. Algebraic Expression
5. Geometrical Construction
6. Coordinates
7. Rate & Ratio
8. Circle
9. Statistic
10. Transformation

Teacher Shireen

TV Tutor (TVIQ, ASTRO)
for SPM Maths

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Forecast Year 2010

PMR Math

Topics (Form)	Number of questions								Forecast 2010	
	2004		2005		2006		2007			
	P1	P2	P1	P2	P1	P2	P1	P2		
1. Whole Numbers (1)	1	–	1	1	1	–	1	–	P1	P2
2. Number Patterns and Sequences (1)	3	–	3	–	2	–	2	–	1	-
3. Fractions (1)	1	1	–	–	1	1	1	–	2	-
4. Decimals (1)	1	1	–	–	–	–	1	1	-	1
5. Percentages (1)	2	–	1	–	1	–	1	–	-	1
6. Integers/Directed Numbers (1, 2)	1	–	1	1	–	1	1	1	1	-
7. Basic Measurements (1)	3	–	1	–	1	–	1	–	1	-
8. Lines and Angles (1, 3)	1	–	1	–	4	–	–	–	1	-
9. Polygons (1, 3)	2	1	5	–	2	–	4	–	3	-
10. Perimeter and Area (1)	2	–	2	–	2	–	3	–	3	-
11. Solid Geometry (1, 2, 3)	2	1	3	–	4	–	4	1	2	-
12. Squares, Square Roots, Cubes and Cube Roots (2)	–	1	–	1	–	1	–	–	4	-
13. Algebraic Expressions (1, 2, 3)	–	3	–	2	–	2	–	1	–	1
14. Linear Equations (2, 3)	–	1	1	1	1	1	1	1	-	3
15. Algebraic Formulae (3)	–	1	–	1	–	1	–	–	1	1
16. Geometrical Constructions (2, 3)	1	1	–	2	–	2	–	1	–	1
17. Pythagoras' Theorem (2)	1	–	1	–	–	–	1	–	-	2
18. Ratios, Rates and Proportions (2, 3)	2	–	3	–	3	–	3	–	1	-
19. Coordinates (2)	4	–	2	–	3	–	2	–	3	-
20. Loci in Two Dimensions (2)	1	1	1	1	1	1	1	1	3	-
21. Circles (2, 3)	6	–	6	–	5	–	5	–	1	1
22. Transformation (2, 3)	1	1	1	2	1	2	1	3	5	-
23. Statistics (2, 3)	4	2	4	1	4	2	4	2	1	2
24. Indices (3)	–	2	–	2	–	2	–	2	4	2
25. Linear Inequalities (3)	1	1	1	1	1	1	1	1	-	2
26. Graphs of Functions (3)	–	1	2	1	2	1	2	1	1	1
27. Trigonometry (3)	–	1	–	2	–	1	–	–	–	–
Total	40	20	40	20	40	20	40	20		

Integers

Integers

..., -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, ...

negative integers zero positive integers

Together

Separate

Same
symbol

$+, + = +$

$-, - = +$

Different
symbol

$-, + = -$

$+, - = -$

**Same
symbol**

1) Symbol -
copy

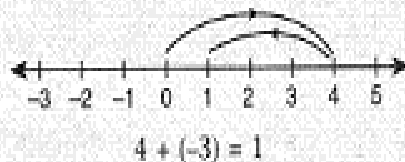
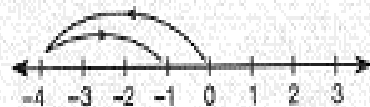
2) Value -
plus

**Different
symbol**

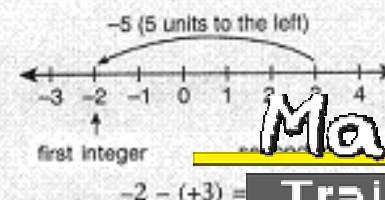
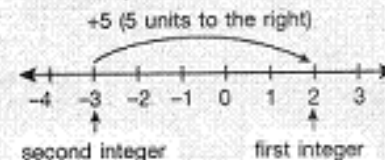
1) Symbol -
*take bigger
digit's symbol*

2) Value -
minus

Addition of integers



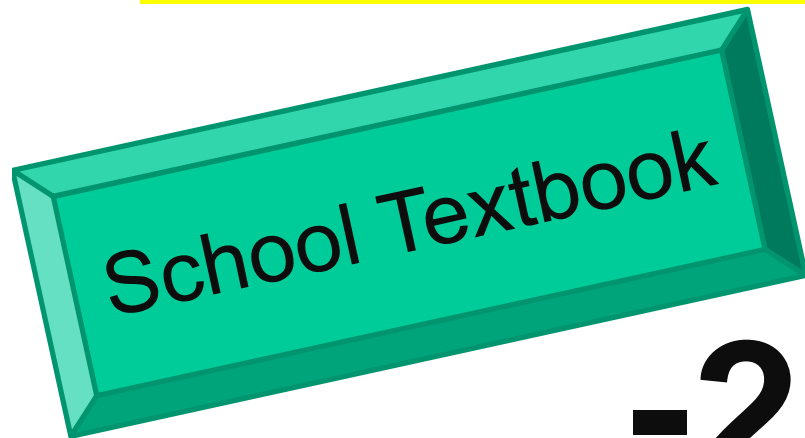
Subtraction of integers



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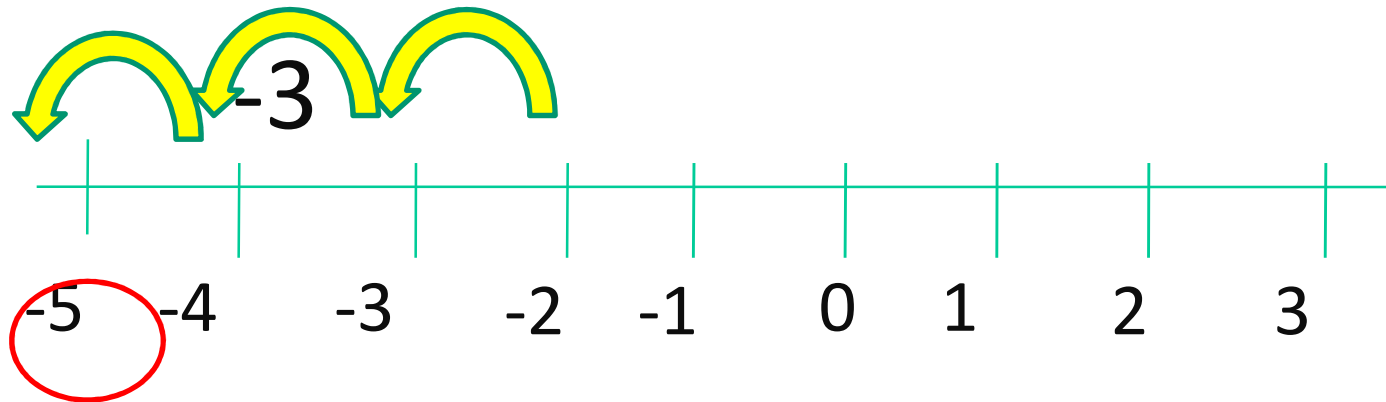
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MEMORY SKILLS - STORY



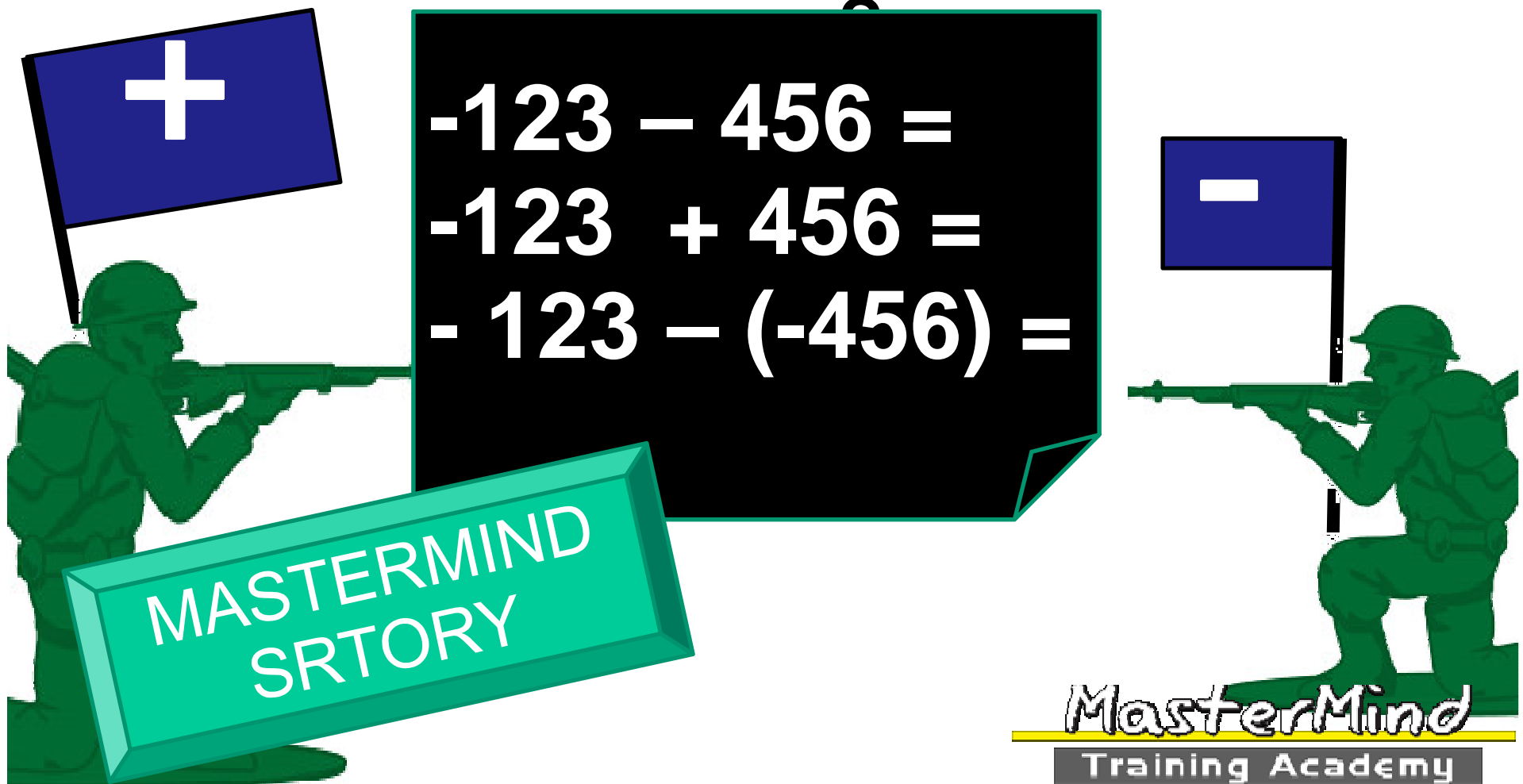
Maths QUES:

$$-2 - 3 = \dots\dots\dots$$



MEMORY SKILLS - STORY

How shall u draw the NUMBER LINE



Scale

Object
BIGGER

• 1 : 2

Object
Smaller

• 1 : 0.5

Same
Size

• 1 : 1

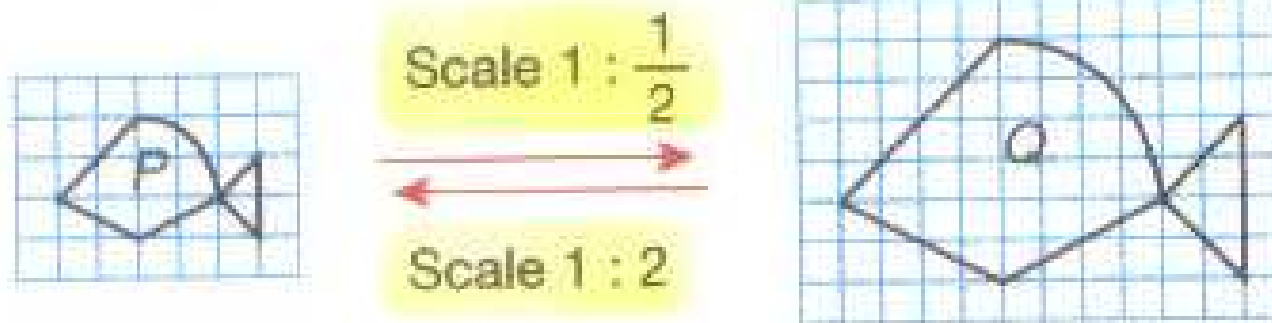
■ drawing / object

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Scale Drawing –F3

$$\text{Scale} = \frac{\text{size of drawing}}{\text{size of object}} \\ = 1 : n$$

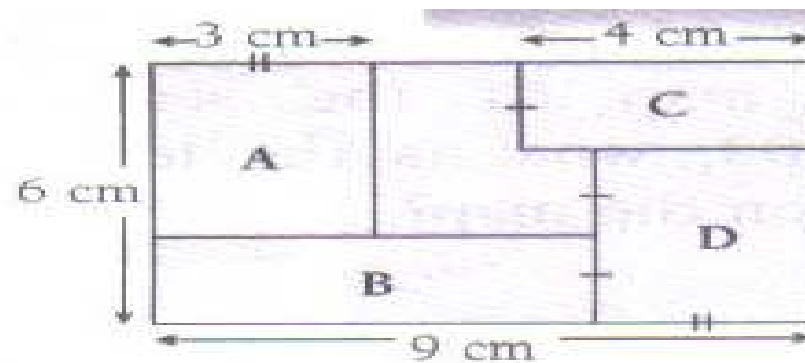


- If Q is the scale drawing of P, the scale used is $1 : \frac{1}{2}$.
(If $n < 1$, the drawing is bigger than the object.)

- If P is the scale drawing of Q, the scale used is $1 : 2$.
(If $n > 1$, the drawing is smaller than the object.)

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The diagram shows the floor plan of a house, measuring $24 \text{ m} \times 36 \text{ m}$. Which of the rooms labelled **A**, **B**, **C** and **D**, is a rectangle measuring $8 \text{ m} \times 24 \text{ m}$?

Solution

$$\begin{aligned}\text{Scale} &= 6 \text{ cm} : 24 \text{ m} \\ &= 1 \text{ cm} : 4 \text{ m}\end{aligned}$$

Thus, 1 cm represents 4 m on actual ground.

In the diagram, room **B** measures $2 \text{ cm} \times 6 \text{ cm}$.

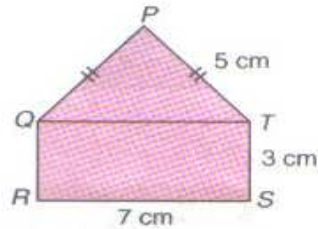
2 cm represents $2 \times 4 \text{ m} = 8 \text{ m}$.

6 cm represents $6 \times 4 \text{ m} = 24 \text{ m}$.

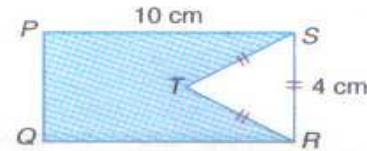
Thus, room **B** is a rectangle measuring $8 \text{ m} \times 24 \text{ m}$.

Perimeter

- The perimeter of a shape is the total length of all the sides enclosing the shape.



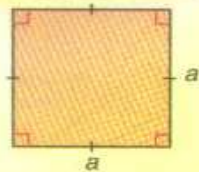
$$\begin{aligned}\text{Perimeter of shape} &= PQ + QR + RS + ST + TP \\ &= 5 + 3 + 7 + 3 + 5 \\ &= 23 \text{ cm}\end{aligned}$$



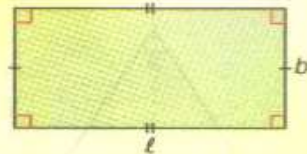
$$\begin{aligned}\text{Perimeter of shaded region} &= PQ + QR + RT + TS + SP \\ &= 4 + 10 + 4 + 4 + 10 \\ &= 32 \text{ cm}\end{aligned}$$

Area

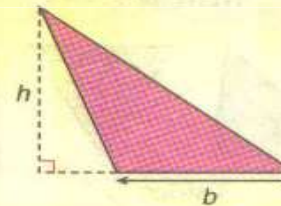
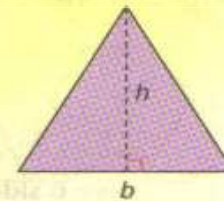
- The area of a shape is the total amount of its flat surface.



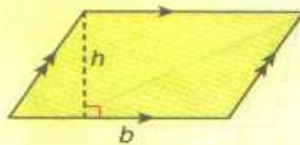
$$\begin{aligned}\text{Area of square} &= \text{length} \times \text{breadth} \\ &= a \times a\end{aligned}$$



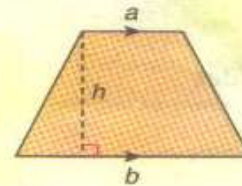
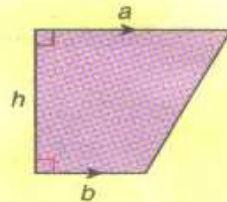
$$\begin{aligned}\text{Area of rectangle} &= \text{length} \times \text{breadth} \\ &= l \times b\end{aligned}$$



$$\begin{aligned}\text{Area of triangle} &= \frac{1}{2} \times \text{base} \times \text{height} \\ &= \frac{1}{2} \times b \times h\end{aligned}$$



$$\begin{aligned}\text{Area of parallelogram} &= \text{base} \times \text{height} \\ &= b \times h\end{aligned}$$



$$\begin{aligned}\text{Area of trapezium} &= \frac{1}{2} \times (\text{sum of parallel sides}) \times \text{height} \\ &= \frac{1}{2} \times (a + b) \times h\end{aligned}$$

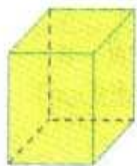
Conversion of units

- $1 \text{ cm}^2 = 100 \text{ mm}^2$
- $1 \text{ m}^2 = 10\,000 \text{ cm}^2$
- $1 \text{ km}^2 = 1\,000\,000 \text{ m}^2$

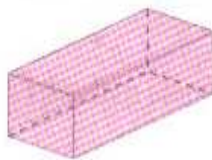
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Solids



Cube



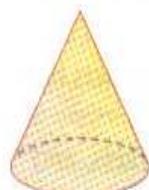
Cuboid



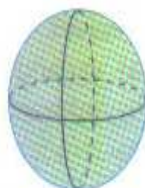
Pyramid



Cylinder



Cone



Sphere

Total surface area

 Cube	$6x^2$
 Cuboid	$2lb + 2bh + 2lh$
 Cylinder	$2\pi r^2 + 2\pi rh$

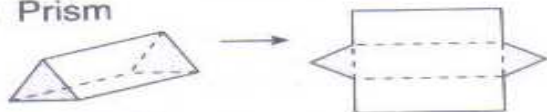
Total surface area

 Cone	$\pi r^2 + \pi rl$
 Base area + areas of 4 triangles	
 Sphere	$4\pi r^2$

SOLID GEOMETRY II

GEOMETRIC SOLIDS AND THEIR NETS

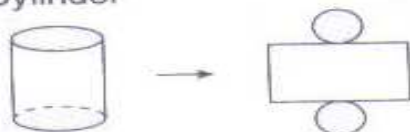
(a) Prism



(b) Pyramid

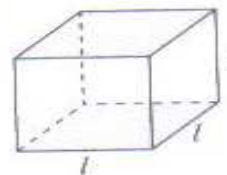


(c) Cylinder



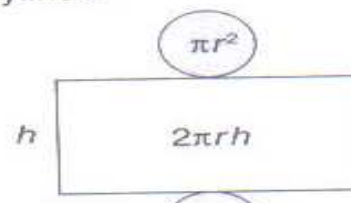
TOTAL SURFACE AREA OF GEOMETRIC SOLIDS

(a) Cube

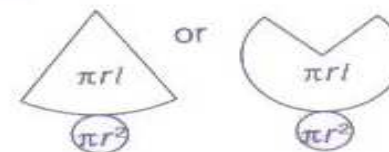


$$\text{Surface area} = 6 \times l^2$$

(b) Cylinder



(c) Cone



$$\text{Total surface area} = \pi rl + \pi r^2$$

(d) Sphere



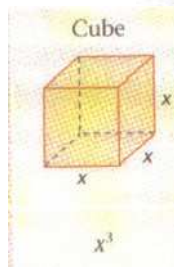
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SOLID GEOMETRY III

Solid

Geometry

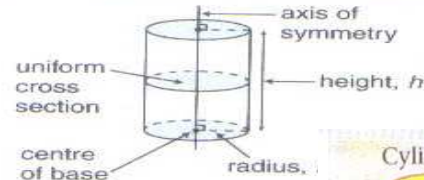


RIGHT PRISMS

uniform cross section

Volume of prism
= area of cross section \times height

RIGHT CIRCULAR CYLINDERS



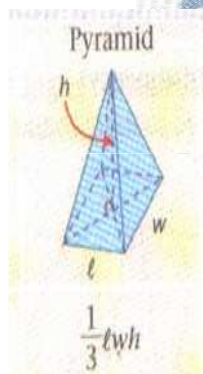
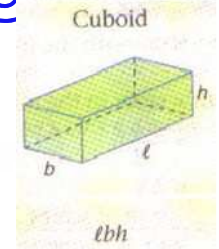
Volume of cylinder
= area of base \times height
= $\pi r^2 h$

CONVERSION OF UNITS OF VOLUME

- $1 \text{ cm}^3 = 1\,000 \text{ mm}^3$
- $1 \text{ m}^3 = 1\,000\,000 \text{ cm}^3$

Units of volume of liquids:

- $1 \text{ m}\ell = 1 \text{ cm}^3$
- $1\,000 \text{ m}\ell = 1 \text{ litre}$
- $1\,000 \text{ litres} = 1 \text{ m}^3$



RIGHT PYRAMIDS

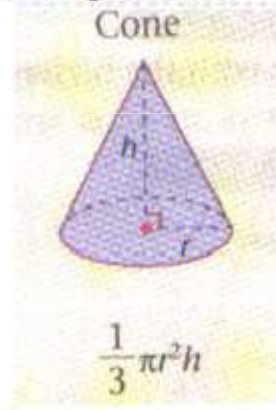
vertex

height, h

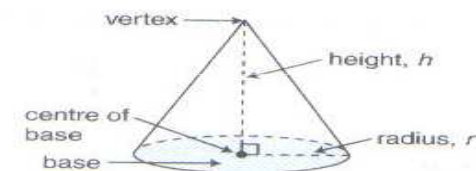
centre of base

base

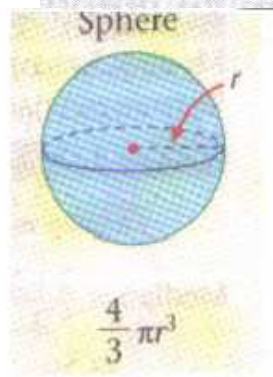
Volume of pyramid
= $\frac{1}{3} \times$ area of base \times height
= $\frac{1}{3} abh$



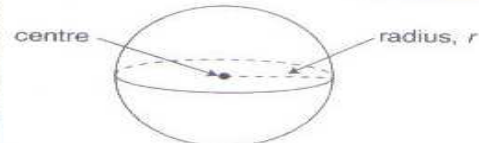
RIGHT CIRCULAR CONES



Volume of cone
= $\frac{1}{3} \times$ area of base \times height
= $\frac{1}{3} \pi r^2 h$



SPHERES AND HEMISPHERES



Volume of sphere = $\frac{4}{3} \pi r^3$



Volume of hemisphere
= $\frac{1}{2} \times \frac{4}{3} \pi r^3$
= $\frac{2}{3} \pi r^3$

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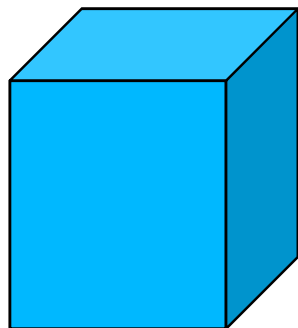
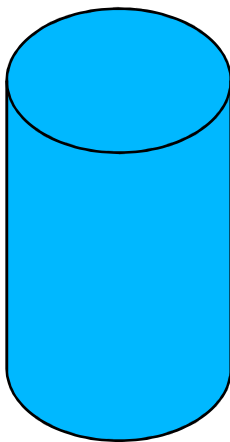
Solid Geo / Volume

Same
Size

Sharp
Point

Area X
Height

$\frac{1}{3} \times \text{Area} \times \text{Height}$



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SPM

MATHS

Paper 2

Paper 1

40 objective
questions
1 hour 15 mins

subjective
questions

2 hour 30 mins

Sec A

Answer all 11
compulsory questions,
52 %

Sec B

answer any 4 out of 6
questions

48%

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10 hot topics

- Standard Form
- Straight Line
- Lines & Planes in 3D
- Number bases
- Matrices

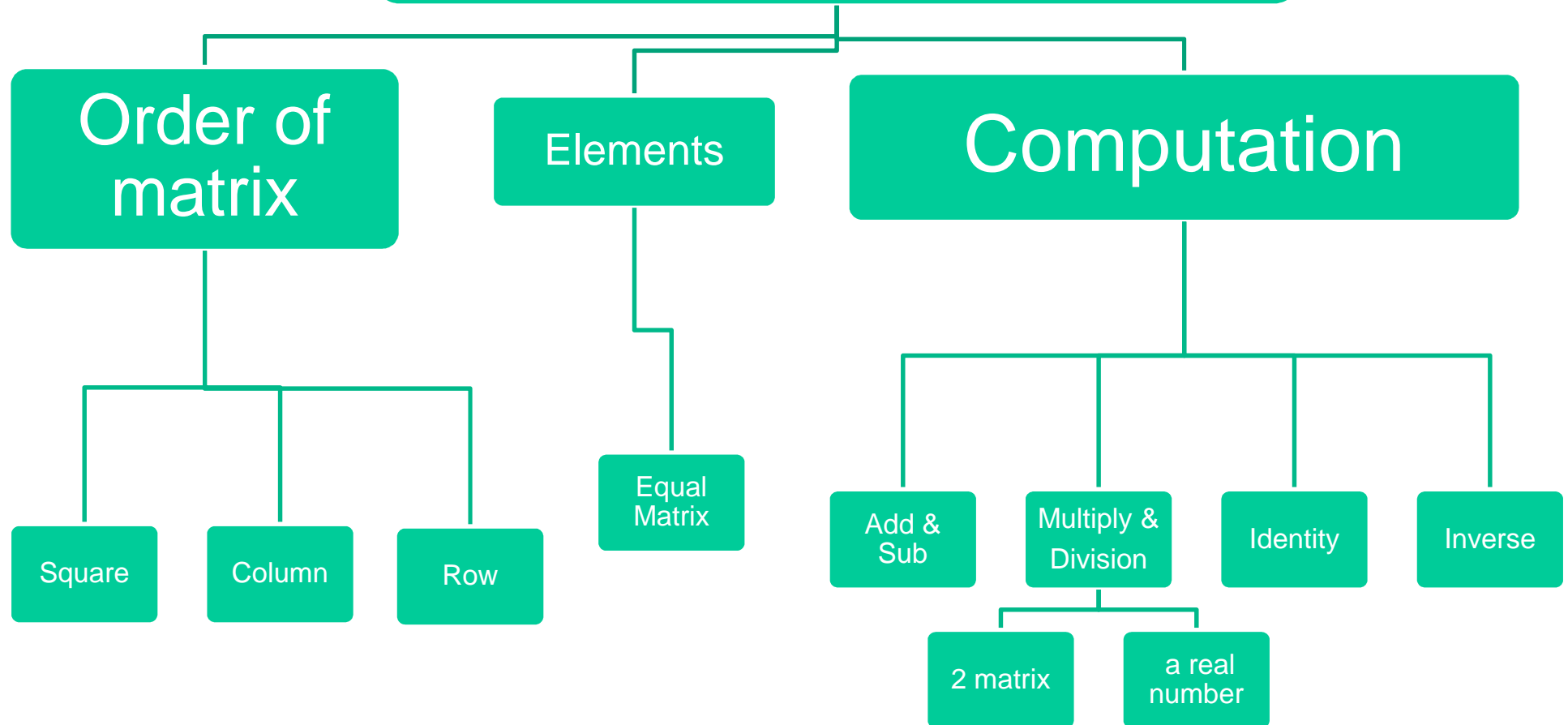
- Probability
- Graph & Functions
- Transformation
- Statistic
- Earth as a Sphere

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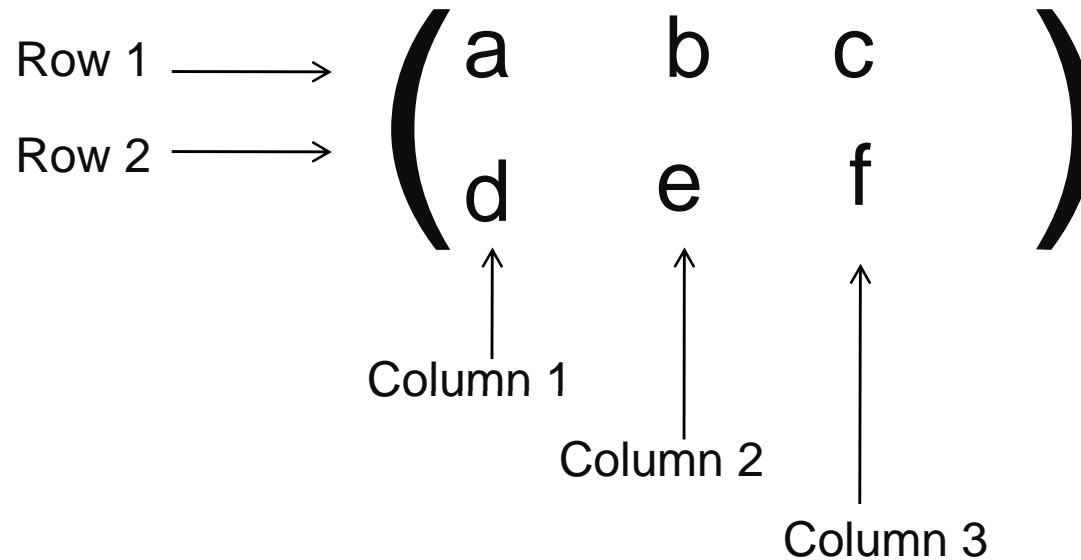
Matrices

Row & Column



ORDER of MATRIX

ROW



COLUMN



ORDER of MATRIX
= number of row X number of column
= 2 X 3

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MATRICE (Addition)



Only applicable for equal matrice

$$\begin{pmatrix} a & b \\ c & d \end{pmatrix} + \begin{pmatrix} w & x \\ y & z \end{pmatrix} = \begin{pmatrix} a+w & b+x \\ c+y & d+z \end{pmatrix}$$

$$\begin{pmatrix} 2 & 1 \\ 4 & 3 \end{pmatrix} + \begin{pmatrix} 3 & 8 \\ 21 & 0 \end{pmatrix} = \begin{pmatrix} 5 & 9 \\ 25 & 3 \end{pmatrix}$$

$$2 + 3$$

$$1 + 8$$

MATRICE (Subtraction)

★ Only applicable for equal matrices

$$\begin{pmatrix} a & b \\ c & d \end{pmatrix} - \begin{pmatrix} w & x \\ y & z \end{pmatrix} = \begin{pmatrix} a-w & b-x \\ c-y & d-z \end{pmatrix}$$

$$\begin{pmatrix} 12 & 1 \\ 4 & 3 \end{pmatrix} - \begin{pmatrix} 3 & 8 \\ 21 & 0 \end{pmatrix} = \begin{pmatrix} 9 & -7 \\ -17 & 3 \end{pmatrix}$$

$$\begin{array}{r} 12 - \\ 3 \end{array}$$

$$1 - 8$$

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MATRICES

(Multiply-with a whole number)

$$a \begin{pmatrix} w & x \\ y & z \end{pmatrix} = \begin{pmatrix} aw & ax \\ ay & az \end{pmatrix}$$

$$3 \begin{pmatrix} 2 & 10 \\ -3 & 0 \end{pmatrix} = \begin{pmatrix} 6 & 30 \\ -9 & 0 \end{pmatrix}$$

Diagram illustrating the multiplication of a scalar (3) with a 2x2 matrix. The scalar 3 is labeled as 3 X 3. The matrix is labeled as 3 X 10. The resulting matrix is labeled as 3 X 3. The elements of the resulting matrix are 6, 30, -9, and 0. The logo "MasterMind Training Academy" is visible in the bottom right corner.

MATRICES

(Multiply-2matrices)



Step 1 : Analyze order of matrix of the question
Step 2 : Find out order of matrix for the answer

$$\begin{pmatrix} \text{w} & \text{x} \\ \text{y} & \text{z} \end{pmatrix} \begin{pmatrix} \text{a} \\ \text{b} \end{pmatrix} = \begin{pmatrix} \text{wa} + \text{xb} \\ \text{ya} + \text{zb} \end{pmatrix}$$

2 X 2

2 X 1

Step 1

Find out order of matrix of the question

2 X 1

Step 2

Find out order of matrix for the answer

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