Cairo Governorate
Nozha Directorate of Education
Nozha Language Schools
"Ismailia Road" Branch

Department : Maths
Form : 2^{nd} Prep.
Sheet

Alg.

((Sheet 1))

[1] Complete :

1) $\sqrt[3]{216}$ = ………………..

2) $\sqrt[3]{(\frac{1}{8})^2}$ = ………….……

3) $\sqrt[3]{-64} + \sqrt{16}$ = ………………….

4) $\sqrt[3]{a^3}$ = ……………………..

5) $X^3 = 64$ then $\sqrt{X}$ = …………….

6) $\sqrt[3]{X^6} = \sqrt{\ldots\ldots\ldots}$

7) $\frac{X}{3} = \frac{9}{X^2}$ Then X = ……………

8) If the area of square = 169 cm^2 Then the side length = ………….. cm .

9) If the volume of cube 64 cm^3 Then its edge = …………… cm .

10) If the volume of cube 125 cm^3 Then the sum of edges = …………cm .

[2] Find S.S of equations in Q :

1) $(X - 2)^2 = 25$

2) $(X + 3)^2 = 64$

3) $\sqrt{2X - 1} = 3$

4) $\sqrt{2X}$ -3 = 2

5) $(X - 2)^3 = 27$

6) $(3 X + 1)^3 = -8$

7) $(2 X + 1)^3 - 7 = 20$

8) $(X + 1)^3 - 2 = 6$

9) $X^3 + 16 = \frac{3}{8}$

10) $\sqrt[3]{X-2} = 3$

11) $(X^3 - 14)^2 = 169$

12) $\sqrt{(X-2)^2} = 4$

((Sheet 2))

" The set of irrational numbers Q`"

Which of the following irrational and the other rational :

1) $\sqrt{4}$
2) $\sqrt[3]{125}$
3) $\sqrt[3]{-8}$
4) $\sqrt{7}$
5) 2.5
6) $\sqrt[3]{4}$
7) $\frac{22}{7}$
8) Π
9) $\frac{10}{5}$

Find the value of X :

1) $X < \sqrt{2} < X + 1$
2) $X < \sqrt{80} < X + 1$
3) $X < \sqrt[3]{50} < X + 1$

Choose the correct answer :

1) The irrational number in the following number is ……………

a) $\sqrt{\frac{1}{4}}$ b) $\sqrt[3]{8}$ c) $\sqrt{\frac{4}{9}}$ d) $\sqrt{2}$

2) The irrational number located between 2 and 3 is ……………

a) $\sqrt{10}$ b) $\sqrt{7}$ c) 2.5 d) $\sqrt{3}$

3) The area of square whose side length is $\sqrt{3}$ cm = ……… cm^2 .

a) $4\sqrt{3}$ b) 9 c) 3 d) 6

Prove that :

1) $\sqrt{2}$ is included between 1.4 and 1.5
2) $\sqrt[3]{15}$ is included between 2.4 and 2.5

Represent on the number line :

1) $\sqrt{7}$
2) $1 + \sqrt{7}$
3) $2 - \sqrt{7}$
4) $2 + \sqrt{7}$

((Sheet 3))

" The set of real numbers "

- $R = R_+ \cup \{0\} \cup R_-$
- $R = Q \cup Q`$
- $R^* = R - \{0\}$

Complete :

1) $R =$ ……… U ……… U ……….

2) $R =$ ……… U ………

3) $R_+ \cap R_- =$ ……….

4) $R_+ \cup R_- =$ ……….

5) $Q \cup Q` =$ ……….

6) $Q \cap Q` =$ ……….

7) $R - \{0\} =$ ……….

8) $R - R_+ =$ ………..

9) $R - R_- =$ ….…….

10) $R - R^* =$ ……….

11) $R - Q =$ ………..

12) $R - Q` =$ ……….

Find S.S of equations in R :

1) $\frac{1}{2} X^2 - 5 = 0$

2) $\frac{3}{4} X^2 + 2 = -11$

((Sheet 4))

" Intervals "

- Interval is the set of all numbers which are subset from real numbers

[[Notes]]

1) $\{ X : X \in R , -2 \leq X \leq 5 \} = [-2 , 5]$ " closed interval "
2) $\{ X : X \in R , -2 < X < 5 \} =] -2 , 5 [$ " open interval "
3) $\{ X : X \in R , -2 \leq X < 5 \} = [-2 , 5 [$ " semi open or semi closed interval "
4) $\{ X : X \in R , X \geq 3 \} = [3 , \infty [$
5) $\{ X : X \in R , X < 2 \} =] - \infty , 2 [$
6) $R =]- \infty , \infty[$
7) $R_+ =]0 , \infty [$
8) $R- =]- \infty , 0 [$
9) The set of non – negative real numbers = $[0 , \infty [$
10) The set of non – positive real numbers = $] -\infty , 0]$

- **Put $\in$, $\notin$:**

1) 2 ……. [1 , 5]
2) -2 …….] -2 , 1]
3) 0 ……. [-1 , 4 [

- **If X = [2 , 5 [, Y = [-1 , 3 [Find by using number line :**

1) $X \cap Y$ 2) $X \cup Y$ 3) X – Y
4) Y – X 5) X 6) Y`

- **Find by using number line :**

1) $[-1 , 4] \cap [2 , 5]$ = ………………
2) $[-3 , 3] \cup [1 , 5]$ = ………………
3) $[-2 , 3] – [1 , 4]$ = ……………

4) $[-3 , 0] \cap] 0 , 2]$ =……….…….

5) $[-1 , \infty [\cup [-3\ 4]$ = ……..…….

6) $[-1 , 5] -] -1 , 5 [$ = …………….

7) $]-\infty , 3] \cap [-4 , \infty [$ = ………..

8) $]-\infty , 2] -] -\infty , 0]$ = ………….

9) $[3 , 5] \cup \{ 3 , 5 \}$ = ……………

10) $[1 , 4] \cap \{ 1 , 4 \}$ = …………..

11) $[1 , 4] - \{ 1 , 4 \}$ = ……………

12) $]2 , 5 [\cap \{ -2 , 3 , 4 \}$ = ……….

13) $R_+ \cap [0 , 5]$ = …………

14) $R \cup] -1 , 4]$ = ………..

15) $R_- - [-1 , 1]$ = ………….

<u>Complete :</u>

1) If $X \in [-3 , 4]$, then $X^2 \in$ ……………
2) The sum of all real numbers in $[-5 , 5]$ is ……………..
3) If $X \in [1 , 16]$, then $-\sqrt{X} \in$ ………………..

((Sheet 5))

" Operations on the real numbers "

Find each of the following in simplest form :

1) $\sqrt{2} + 3\sqrt{2} + 2\sqrt{2} =$ ……………………

2) $5\sqrt{3} - 2\sqrt{3} + 4\sqrt{3} =$ ……………………

3) $\sqrt{5} - \sqrt{3} + 2\sqrt{5} + \sqrt{3} =$ …………………

4) $3\sqrt{2} - 2\sqrt{5} + 5\sqrt{2} + \sqrt{5} =$ ……………..

5) $\sqrt{3} \times \sqrt{3} =$ …………….

6) $\sqrt{2} \times \sqrt{3} =$ ……………

7) $2\sqrt{2} \times 3\sqrt{5} =$ …………

8) $2\sqrt{2} \times 3\sqrt{2} =$ …………

9) $\sqrt{2}\ (5 + \sqrt{2}) =$ ……….

10) $(\sqrt{2} + 1)(\sqrt{3} + 2) =$ ……………

Put the denominator as whole number :

1) $\frac{10}{\sqrt{5}}$ 2) $\frac{2}{3\sqrt{2}}$ 3) $\frac{\sqrt{2}+3}{\sqrt{2}}$

Complete :

1) The additive inverse of $\frac{6}{\sqrt{2}}$ = ……………….

2) The additive inverse of $(\sqrt{2} - \sqrt{5}) =$ ………………

3) The multiplicative inverse of $\sqrt{5}$ is …………………

4) The multiplicative inverse of $\frac{\sqrt{2}}{6}$ is ………………

((Sheet 6))

" Operations on the square roots "

Find in simplest form :

1) $\sqrt{2} + \sqrt{18} + \sqrt{8}$

2) $\sqrt{98} - \sqrt{128} - \sqrt{18} + 4\sqrt{2}$

3) $2\sqrt{3} + \sqrt{27} - \sqrt{48}$

4) $\sqrt{32} - \sqrt{72} + 6\sqrt{\frac{1}{2}}$

5) $2\sqrt{5} + 4\sqrt{20} - 5\sqrt{\frac{1}{5}}$

6) $\sqrt{3} + \frac{3}{\sqrt{3}} - \sqrt{2} \times \sqrt{6}$

7) $\sqrt{27} + \sqrt{8} - 2\sqrt{12} + \sqrt{18}$

8) $\sqrt{3} + 2\sqrt{20} + \sqrt{12} + \sqrt{45}$

Complete :

1) If $X = \frac{\sqrt{6}}{\sqrt{2}}$ Then X^{-1} = …………………

2) $\sqrt{5}$, $\sqrt{20}$, $\sqrt{45}$, $\sqrt{80}$, ………… in the same pattern

((Sheet 7))

" The two conjugate numbers "

[[Note]]

1) (X + 3) , (X – 3) are conj
2) ($\sqrt{3}$ + $\sqrt{2}$) , ($\sqrt{3}$ - $\sqrt{2}$) are conj
3) ($\sqrt{5}$ - 1) , ($\sqrt{5}$ + 1) are conj
4) ($\sqrt{5}$ + $\sqrt{3}$) , ($\sqrt{5}$ + $\sqrt{3}$) not conj

1. If $X = \frac{2}{\sqrt{7}-\sqrt{5}}$ $Y = \sqrt{7} - \sqrt{5}$, Find $(X + Y)^2$

2. If $X = \sqrt{5} - \sqrt{2}$ $Y = \frac{3}{\sqrt{5}-\sqrt{2}}$ Prove that X and Y are conjugate numbers

   then Find $X^2 – 2 XY + Y^2$

3. If $X = \sqrt{7} + \sqrt{5}$ $Y = \frac{2}{X}$

   Find $\frac{X+Y}{XY}$

4. If $X = \frac{4}{\sqrt{7}-\sqrt{3}}$ and $Y^{-1} = \frac{1}{\sqrt{7}-\sqrt{3}}$ Find X^2Y^2

((Sheet 8))

" Operations on the cube roots "

Find in simplest form :

1) $\sqrt[3]{2} + \sqrt[3]{16} + 2\sqrt[3]{54}$

2) $\sqrt[3]{24} - 2\sqrt[3]{3} + \sqrt[3]{81}$

3) $\sqrt[3]{-54} + \sqrt[3]{16} - \sqrt[3]{250}$

4) $\sqrt[3]{81} + \sqrt[3]{-24} - 3\sqrt[3]{\frac{1}{9}}$

5) $\sqrt[3]{108} - 2\sqrt[3]{4} - \sqrt[3]{\frac{1}{2}}$

6) $\sqrt[3]{3} - \sqrt[3]{4} \times \sqrt[3]{6} + 3\sqrt[3]{\frac{1}{9}}$

7) $\frac{7}{3}\sqrt{18} + \sqrt[3]{54} - 7\sqrt{2} + \sqrt[3]{16}$

8) $\sqrt[3]{-16} + \frac{14}{\sqrt{7}} - \sqrt{28} + \sqrt[3]{54}$

((Sheet 9))

" Applications on the real numbers "

Important rules :

[[Cube]]

L.S.A = $4\ L^2$

T.S.A = $6\ L^2$

Volume = L^3

[[Cuboid]]

L.S.A = $2\ (X + Y) \times Z$

T.S.A = $2\ (XY + YZ + ZX)$

Volume = XYZ

[[Circle]]

Circumference = $2\ \pi\ r$

Area = $\pi\ r^2$

[[Sphere]]

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

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

[[Right circular cylinder]]

L.S.A = $2\pi\ rh$

T.S.A = $2\pi\ rh + 2\pi\ r^2$

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

Complete :

1) If the edge of a cube is 5 cm then its volume = ……………….cm^3 .
2) If the volume of cube 64 cm^3 . Then its lateral area = …………….cm^2
3) If the total area of cube 96 cm^2 . Then the area of one face = ………..cm^2
4) Aright circular cylinder with volume 40π cm^3 and its height 10 cm then its base radius = ……………….
5) The volume sphere whose diameter 6 cm = ………..cm^3 .
6) If the volume of sphere $\frac{9}{16}\pi$ cm^3 . Then its radius = …………… cm .

Problems :

1) A cube whose lateral area is 36 cm^2 . Find its total area and its volume .
2) A cube its volume 27 cm^3 . Find its total area .
3) The sum of all edges of a cube is 60 cm . Find its volume .
4) Acuboid its dimensions 3 cm , 4 cm , 5 cm . Find its total area and its volume .
5) A circle its area 154 cm^2 . Find its circumference .
6) Aright circular cylinder its volume 924 cm^3 and its height 6 cm . Find the lateral area .
7) Find the height of right circular cylinder whose height is equal to its base radius and its volume is 72π cm^3 .
8) The volume of sphere is 4188 cm^3 . Find its radius length .
9) Ametalic sphere with diameter 6 cm has got melt and changed into circular cylinder with radius 3 cm . Find its height .

((Sheet 10))

" Solving equations and inequalities of first degree in one variable in R "

Find S.S of equations in R

1) $2 \times -3 = 4$

2) $\sqrt{5} \times -1 = 4$

Find S.S of inequalities in R and graph the S.S on number line :

1) $2X - 1 \geq 3$

2) $2X + 5 \geq 3$

3) $3 - 2X \geq 7$

4) $5 - 3X \leq 11$

5) $-8 \leq 3X + 1 \leq 4$

6) $13 \geq 2X - 1 \geq 5$

7) $|-3| < 2X - 1 < 5$

8) $5 \leq \dfrac{-2X + 6}{3} < 4$

9) $2 + 2X \leq 3X + 3 < 5 + 2X$

10) $X - 1 < 3X - 1 \leq X + 1$

((Sheet 11))

" Relation between two variables "

1) Find three ordered pairs satisfy this relation :

$2X + Y = 5$

2) Represent graphically

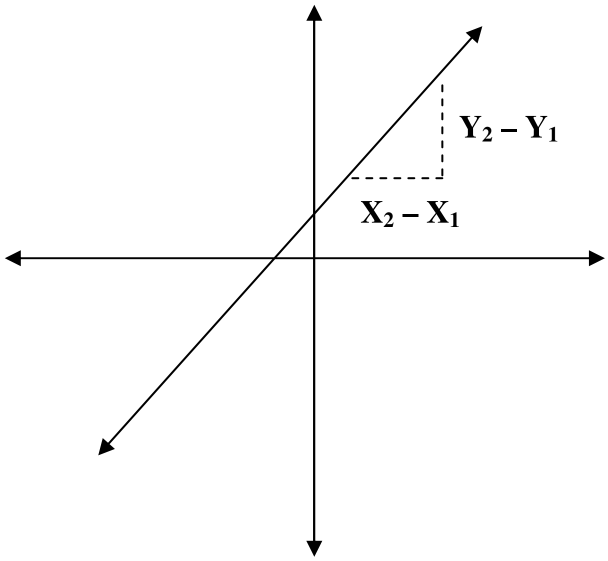
$X + 2Y = 3$ $Y - 3X = 1$

3) Complete :

1) If (3 , 6) satisfies $Y = KX$. Then K = ……………….
2) If (3 , 1) satisfies $Y - 3X = a$. Then a = …………….
3) If (3 , a) satisfies $Y - 2X = 4$. Then a = …………..…
4) If (K , 2 K) satisfies $X + Y = 15$. Then K = ………….
5) If (2 , -5) satisfies $3X - Y + C = 0$. Then C = ………..
6) If the relation $2X + Y = 6$. Then the intersection point of X – a x is ……….. and Y – a x is ………………

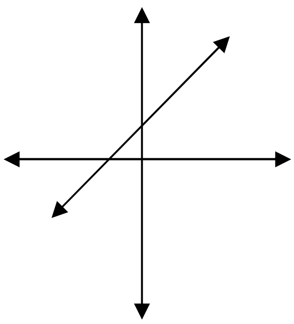
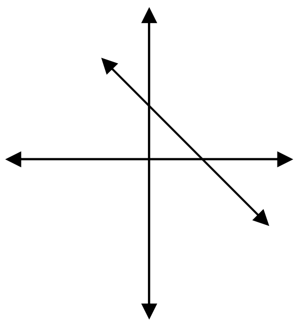
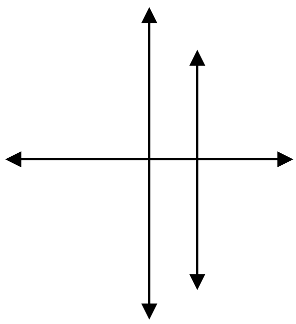
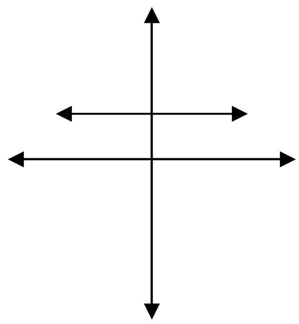
((Sheet 12))
" Slope of straight line "

$$S = \frac{Y_2 - Y_1}{X_2 - X_1}$$



1) <u>Classify the slope of st. line in each of the following</u>

" Positive – negative – zero – undefined "

2) <u>Complete :</u>

1) The slop of any horizontal st. line = …………

2) The slope of any vertical st. line = ……………

3) If A , B , C , are collinear then the slope of $\overleftrightarrow{AB}$ = ……………

4) The slope of st. line which passes through (2 , 3) (5 , 7) is ………………

5) If the st. line which passes through (2 , 3) (5 , k) parallel to X – a x is then K …………

6) If the st. line which passes through (3 , 4) (K , 7) parallel to Y – a x is then K = …………..

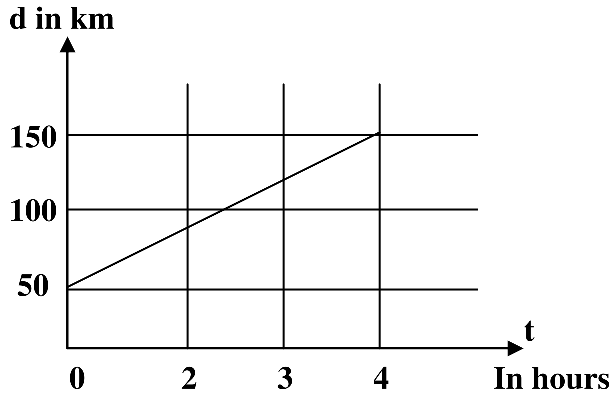
3) If the slope st. line which passes through two points (1 , 3) , (1 , K) equal 3 . Find the value of K .

4) Prove that A , B and C are collinear where A (1 , 1) B (2 , 2) C (-3 , -3)

((Sheet 13))

" Real life applications on the slope "

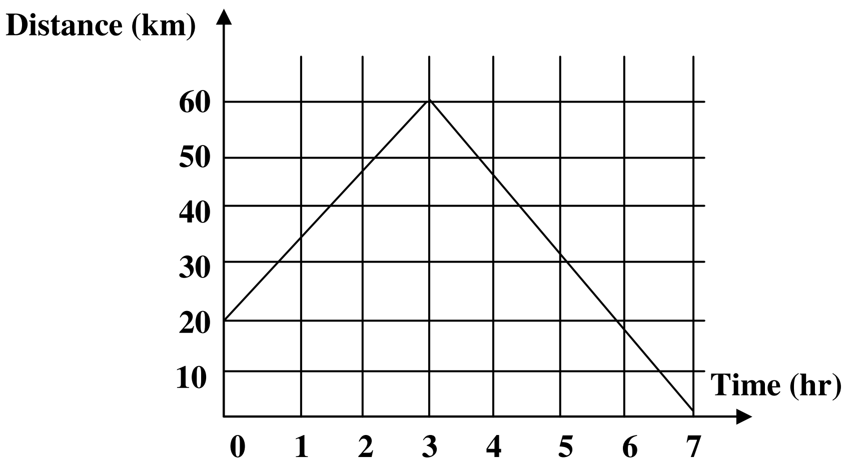
1) The opposite graph represents the motion of a car moving with uniform velocity determine the velocity of the car .



2) The following figure represents the motion of bicycle find the regular speed during

a) The first three hours

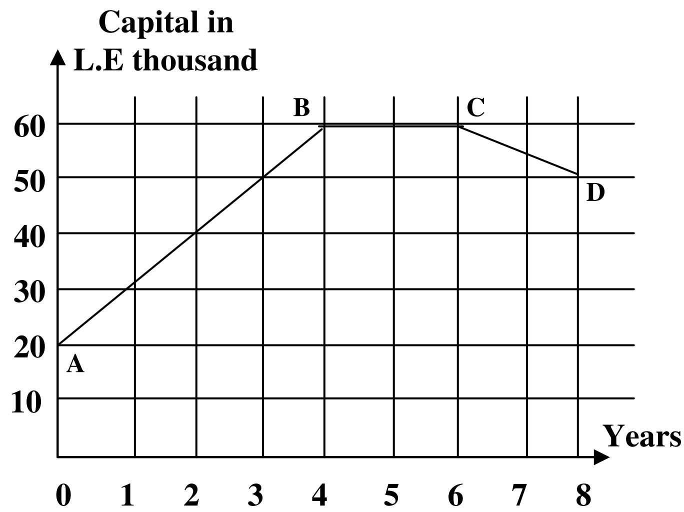
b) The next four hours



3) The opposite figure shows capital change of accompany during 8 years

a) Find the slope of $\overleftrightarrow{AB}$, $\overleftrightarrow{BC}$, $\overleftrightarrow{CD}$

b) Find the starting capital of the company



" Statistics "

1) Complete :

a) The arithmetic mean of 5 , 12 , 17 , 6 is …………….

b) If the lower limit of a set is 8 and the upper limit is 14 then its centre is …………

c) If the lower limit of a set is 4 and its centre is 9 then its upper limit = ……………

d) The median of values 9 , 4 , 8 , 1 , 3 is ………………….

e) The median of values 3 , 7 , 2 , 9 , 5 , 11 is ………………….

f) The point of intersection of ascending and descending cumulative frequency curve determines …………….. on the set axis

g) The mode of values 5 , 3 , 8 , 5 , 9 is ……………….

h) If the mode of values 12 , 7 , X + 1 , 7 , 12 is 7 then X = ……………..

2)

Sets	5-	15-	25-	35-	Total
Freq	6	8	4	2	20

Find the mean

3)

Sets	0-	2-	4-	6-	Total
Freq	1	2	2	5	10

Find the median

4)

Sets	30-	40-	50-	60-	70-	80-	Total
Freq	3	4	12	8	7	6	40

Find the mode

Geom.
Sheet (1)

1-Complete

1. in the parallelogram , each two opposite sides are …….. ,……………
2. in the //gram , each two consecutive angles are ……….
3. the //gram whose diagonals are perpendicular is called ……………
4. the parallelogram whose diagonals are equal in length and perpendicular is called …………………
5. the rhombus whose diagonals are equal in length is called ……………….
6. the rectangle whose diagonals are perpendicular is called ……………….
7. ABCD is a //gram in which m ($\angle$ B) = ……………..°
8. the two diagonals of the square are …………… , ……………..
9. ABCD is a parallelogram in which m ($\angle$ A) + m ($\angle$ C) = 140 °
10. ABCD is a rectangle in which m ($\angle$ A) = 5x – 10 , then x = ………..

2- In the opposite figure :

ABCD is a parallelogram in which AB = 2 cm ,

AD = 6 cm and m ($\angle$ A B C) = 105 °

Compete the following :

1. BC = …………….cm and DC = ………….. cm .

2. m ($\angle$ D) = ………. °, m ($\angle$ A) = ………. ° and m ($\angle$ C) = …….. °

3. The perimeter of the parallelogram ABCD = ……….. cm .

3- In the opposite figure :

ABCD is a rectangle , AC = 6 cm , CD = 2 cm

and M is the point of intersection of the two diagonals .

Complete the following :

1. AB = …………. cm .

2. The perimeter of Δ A B M = ……….. cm .

3. DM = ……………… cm .

Sheet (2)

1- complete:-

1. the medians of the triangle intersect at ……………
2. the no. of medians in the right angled triangle is
3. the length of the median from the vertex of the right angle in the right angled Δ = ……………..
4. the length of the hypotenuse in thirty and sixty triangle = ………….. the length of the side opposite the angle whose measure is 30 º
5. the line segment drawn between the two midpoints of two sides in a triangle is ………………. And its length = …………………

2- In the opposite figure :

If D is the midpoint of $\overline{AB}$, E is the midpoint of $\overline{AC}$
and $\overline{BE} \cap \overline{DC}$ = { M } If DE = 4 cm ,
, DM = 3 cm and BE = 6 cm ,
Find the perimeter of Δ BM C .

3- In the opposite figure :

ABC is a triangle in which m ($\angle$ B) = 90° ,
M ($\angle$ C) = 30° , AC = 9 cm ,
$\overline{AE}$, $\overline{BD}$ are two medians intersecting at M
Find the length of each of : $\overline{BD}$, $\overline{BM}$, $\overline{AB}$

4- In the opposite figure :

ABC is a triangle , X is the midpoint of $\overline{AB}$,
Y is the midpoint of $\overline{BC}$, X y = 5 cm
and $\overline{XC} \cap \overline{AY}$ = { M }
where CM = 8 cm , Y M = 3 cm Find :
1. The perimeter of Δ M X Y .
2. The perimeter of Δ M A C .

5- In the opposite figure :

ABC is a right –angled triangle at B ,m ($\angle$ ACB) = 60° ,

E is the midpoint of $\overline{AC}$ and

DE = B C

Prove that

M ($\angle$AD C) = 90

6- In the opposite figure :

M ($\angle$YL E) = 90° , m ($\angle$ E) = 30° , Y E = 10 cm

M ($\angle$XY Z) = 90° and

L is the midpoint of $\overline{XZ}$

Find by proof the length of :

$\overline{XZ}$ " 10 cm"

7- In the opposite :-

m ($\angle$ X Y Z) = 90° , D is the midpoint of $\overline{XL}$

E is the midpoint of $\overline{ZL}$ and

M is the midpoint of $\overline{XZ}$

Prove that : D E = Y M

8- In the opposite figure :

ABC is a right angled triangle at B

M($\angle$ A C B) = 30° A B = 5 cm

And E is the midpoint of $\overline{AC}$ if D E = 5 cm

Prove that m ($\angle$ A D C) = 90°

Sheet (3)

1- Complete

1- in the isosceles Δ if the measure of one of the two base angles 65º then the measure of its vertex angle = ………………

2- in the isosceles Δ if the vertex angle = 50 º then the measure of one of the two base angles = …………..

3- if ABC is right angled Δ at A , AB =AC then m (∠ B) = …………..

4- in Δ XYZ if XY = XZ , then the exterior angle at the vertex Z is ………………

5- in Δ XYZ if XY = YZ = ZX , then m (∠ X) = …………….º

2- In the opposite figure :

AB= AD , $\overline{AD} \parallel \overline{BC}$,

M (∠ B A D) = 120° and m (∠ B D C) = 65°

Find :-

1. m (∠ A D B)
2. m (∠ C)

3- In the opposite figure :

AB = AC , M (∠ B A C) = 80°

and CE = ED = CD

Find by proof : m (∠B C D)

4- In the opposite figure :

ABC is a triangle in which AC = B C ,

$\overline{AD} \parallel \overline{BC}$ and m (∠ DA C) = 30°

Find :

The measures of the angles of Δ A B C .

5- In the opposite figure :

AB = BC ,m (∠ A BD) = 140°

And $\overline{AC} \parallel \overline{DE}$

Find :

M (∠ E D C)

Sheet (4)

Complete

1- if two angles in the triangle are congruent then the two sides opposite these two angles are ……………… and the triangle is …………

2- If the three angles in the triangle are congruent then the triangle is ……………

3- If the isosceles Δ has angle = 45º , then the Δ is ……………

4- In Δ ABC if AC = CB and m ($\angle$ C) m ($\angle$ A) , then m ($\angle$ B) = …………º

5- ABC is Δ m ($\angle$ A) = 30 º , m ($\angle$ B) : m ($\angle$ C) = 1 : 4 then Δ ABC is ……

2- In the opposite figure :

ABC is a triangle in which AB = AC , X $\in$ $\overline{AB}$,

Y $\in$ $\overline{AC}$ and $\overline{XY}$ // $\overline{BC}$

Prove that :

1. Δ AX Y is an isosceles triangle .
2. X B = Y C

3- In the opposite figure :

AB = AC , $\overline{DE}$ // $\overline{AB}$ and $\overline{DF}$ // $\overline{AC}$

Prove that :

1. DE = DF
2. m ($\angle$ B A C) = m ($\angle$ ED F)

4 In the opposite figure :

$\overline{AC}$ $\cap$ $\overline{BD}$ = { M } ,

MB = M C and $\overline{AD}$ // $\overline{BC}$

Prove that :

MA = M D

5- In the opposit figure :

ABC is a triangle

, $\overrightarrow{BD}$ bisects $\angle$ A B C and $\overline{ED}$ // $\overline{BC}$ where E $\in$ $\overline{AB}$

Prove that :

Δ EBD is an isosceles triangle .

Sheet 5

Complete

1- the straight line drawn from the vertex of the isosceles Δ perpendicular to the base is called ………………..

2- the median of the isosceles Δ drawn from the vertex ……….

3- The bisector of the vertex angle of the isosceles Δ…………..

4- The st. line drawn from the vertex of an isosceles Δ $\perp$ its base ……………

5- Any point $\in$ the axis of the line segment is ……………… from its two terminals

6- If C $\in$ the axis of symmetry of AB then …………… = AC

7- The triangle whose angles are congruent has ……….. axes of symmetry

8- In Δ ABC if m ($\angle$ A) = m ($\angle$ B) $\neq$ 60° then the no. of axes of symmetry of triangle ABC is ………………

9- If the length of each sides in the triangle = $\frac{1}{3}$ the perimeter of triangle then the no. of axes of symmetry of triangle is ………………….

10-If ABCD is a rhombus then the axis of symmetry of AC is …………….

2- In the opposite figure :

IF A B = AC , $\overline{AD} \perp \overline{BC}$, B C = 4 cm and

M ($\angle$DA C) = 35° , complete the following :

1. m ($\angle$ BAD) = ………… 2. m ($\angle$ BAC) = …….

3. m ($\angle$B) = …….. 4. BD = …….cm

5. The axis of symmetry of ΔABC is ……………

3- In the opposite figure :

ABC is a triangle in which AB = AC , $\overrightarrow{AE}$ bisects $\angle$ BAC ,

$\overline{AE} \cap \overline{BC}$ = { E} and D $\in$ $\overline{AE}$

Prove that

1. BE = ½ B C
2. BD = CD

4- In the opposite figure :

AB = AC , BC = 10 cm , m ($\angle$BAD) = 30° and $\overline{AD} \perp \overline{BC}$

1. Find the length of : $\overline{BD}$ and $\overline{AD}$
2. How many axes of symmetry are there at Δ AB C ?
3. Find the area of Δ A B C

Sheet (6)

1-Complete

1) The smallest angle of triangle (in measure) is opposite to ……………………..
2) The longest side in the right angle triangle is …………………….
3) If triangle ABC m ($\angle$A) =50° m ($\angle$B) =30°
4) If in triangle ABC m ($\angle$A) = m ($\angle$B) +m ($\angle$C) then the longest side in the triangle is ……………..
5) in the triangle ABC if m ($\angle$B) > m ($\angle$C) then ………< …………

2- In the opposite figure :

AC > A B and DB = D C

Prove that :

M ($\angle$ ABD) > m ($\angle$ A C D)

3- In the opposite figure :

XY > XL and YZ > ZL

Prove that

m ($\angle$ XL Z) > m ($\angle$ XYZ)

4- In the opposite figure :

ABC is a triangle ,

AB > AC and $\overline{XY}$ // $\overline{BC}$

Prove that :

M ($\angle$ A Y X) > m ($\angle$ A X Y)

5- In the opposite figure :

Δ A B C , $\overrightarrow{BM}$ bisects $\angle$ A B C and $\overrightarrow{CM}$ bisects $\angle$ A C B . If M C > M B

Prove that : m ($\angle$A B C) m ($\angle$A C B)

Sheet (7)
Comparing of lengths of sides of Δ

[1] Complete :

1) The smallest angle of triangle (in measure) is opposite to ………………

2) The longest side in right angled Δ is ……………..

3) The shortest distance between a given point and a given straight line is

…………………

4) In Δ ABC , m ($\angle$C) = 120° then its longest side is ………………

5) In Δ ABC , if m ($\angle$A) = m ($\angle$B) + m ($\angle$C) then the longest side in the triangle is ………………….

[2] In the opposite figure

$\overrightarrow{AE}$ // $\overline{BC}$, m ($\angle$DAE) = 70°

m ($\angle$EAC) = 30°

Prove that AC > AB

[3] In the opposite figure

ABC is Δ , $\overrightarrow{CD}$ bisects $\angle$C

m ($\angle$BDC) = 100°

Prove that AC > DB

[4] In the opposite figure

$\overline{AC} \perp \overline{CD}$, $\overline{BD} \perp \overline{CD}$

Prove that AB > CD

[5] In the opposite figure

ABC is an obtuse angled Δ at B , $\overline{BC}$ // $\overline{DE}$

Prove that AE > AD

Sheet (8)
Triangle inequality

[1] Complete :

1) The lengths of side in Δ ……………..the sum of lengths of two other sides .

2) If the length of two sides in isosceles triangle are 7 cm , 4 cm then the length of the third side = …………………..

3) A triangle has one axis of symmetry the lengths of two sides in it are 4 cm , 8 cm then its perimeter = ……………….

4) In Δ ABC if AB = 3 cm , BC = 5 cm , AC = x cm then $x \in$ ……………..

[2] In the opposite figure

XYZ is Δ , XL = LZ

Prove that XY < YZ

[3] In the opposite figure :

ABC is Δ , M is a point inside it

Prove that

MA + MB + MC > $\frac{1}{2}$ the perimeter of ABC