SOLUTIONS

SAMPLE QUESTION PAPER - 2

Solved

Time : 3 Hours **Maximum Marks : 90**

SECTION 'A'

1. **(B)** 2 — 1

2. **(C)** Number of zeroes of a cubic polynomial = 3 — 1

3. **(B)** Given :

$$x + \frac{1}{x} = 4$$

$$\left(x + \frac{1}{x}\right)^2 = x^2 + \frac{1}{x^2} + 2$$

$$(4)^2 = x^2 + \frac{1}{x^2} + 2$$

$$x^2 + \frac{1}{x^2} = 16 - 2 = 14 \quad 1$$

4. **(C)** For zeroes, put

$$p(x) = 0$$

$$2x + 7 = 0$$

$$x = \frac{-7}{2} \quad 1$$

SECTION 'B'

5. $$\left(4\sqrt{3} + 3\sqrt{2}\right) \times \left(4\sqrt{3} - 3\sqrt{2}\right) = \left(4\sqrt{3}\right)^2 - \left(3\sqrt{2}\right)^2 \quad 1$$

$$= 48 - 18 \quad \tfrac{1}{2}$$

$$= 30. \quad \tfrac{1}{2}$$

[CBSE Marking Scheme, 2012, 2013]

6. Given, $p(x) = kx^2 - x - 4$

$(x + 1)$ is a factor of $p(x)$, then

$$p(-1) = 0 \quad \tfrac{1}{2}$$

$$\therefore \quad k(-1)^2 - (-1) - 4 = 0 \quad \tfrac{1}{2}$$

$$\therefore \quad k + 1 - 4 = 0 \quad \tfrac{1}{2}$$

$$k = 3 \quad \tfrac{1}{2}$$

[CBSE Marking Scheme, 2012]

7. $x^2 - 9 = (97)^2 - (3)^2$ ½

$= (97 + 3)(97 - 3)$ ½

$= 100 \times 94$ ½

$= 9400.$ ½

[CBSE Marking Scheme, 2012]

8. Euclid's axioms

(i) Things which are equal to the same thing are equal to one another.

(ii) If equals are added to equal, the wholes are equal. **1 + 1**

[CBSE Marking Scheme, 2012, 2014]

9.

$x + y + z + w = 360°$ **1**

$(x + y) + (z + w) = 360°$

$x + y + x + y = 360°$ (Since, $z + w = x + y$) ½

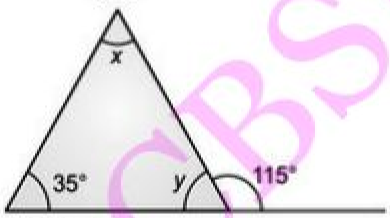
$\therefore$ $2(x + y) = 360°$

$x + y = 180°$

$\Rightarrow$ AOB is a straight line, as straight line makes an angle of 180°. ½

[CBSE Marking Scheme, 2012]

OR



1

$x + 35° = 115°$

$x = 115° - 35° = 80°$

$y = 180° - 115° = 65°$ **1**

10. $a = 15$ cm, $b = 15$ cm, $c = 12$ cm

$s = \frac{a+b+c}{2} = \frac{15+15+12}{2} = 21$ cm ½

Area $= \sqrt{s(s-a)(s-b)(s-c)}$ ½

$= \sqrt{21 \times (21-15)(21-15)(21-12)}$ ½

$= \sqrt{21 \times 6 \times 6 \times 9}$

$= 18\sqrt{21}$ cm². ½

[CBSE Marking Scheme, 2012]

SECTION 'C'

11. $$\left(\frac{5^{-1}\times 7^2}{5^2\times 7^{-4}}\right)^{\frac{7}{2}}\times\left(\frac{5^{-2}\times 7^3}{5^3\times 7^{-5}}\right)^{-\frac{5}{2}} = \left(\frac{7^4\times 7^2}{5^2\times 5^1}\right)^{\frac{7}{2}}\times\left(\frac{7^5\times 7^3}{5^3\times 5^2}\right)^{-\frac{5}{2}}$$ ½

$\Rightarrow$ $$= \left(\frac{7^6}{5^3}\right)^{\frac{7}{2}}\times\left(\frac{7^8}{5^5}\right)^{-\frac{5}{2}}$$ ½

$$= \frac{(7^6)^{7/2}}{(5^3)^{7/2}}\times\frac{(5^5)^{5/2}}{(7^8)^{5/2}}$$ ½

$\Rightarrow$ $$= \frac{7^{21}}{5^{21/2}}\times\frac{5^{25/2}}{7^{20}}$$ ½

$$= 7^{21-20}\times(5)^{\left(\frac{25}{2}-\frac{21}{2}\right)}$$ ½

$$= 7^1\times 5^2$$

$$= 7\times 25 = 175$$ ½

[CBSE Marking Scheme, 2012]

OR

$$\frac{\sqrt{6}}{\sqrt{2}+\sqrt{3}} = \sqrt{18}-\sqrt{12} = 3\sqrt{2}-2\sqrt{3}$$ 1

$$\frac{3\sqrt{2}}{\sqrt{6}+\sqrt{3}} = \sqrt{12}-\sqrt{6} = 2\sqrt{3}-\sqrt{6}$$ ½

$$\frac{4\sqrt{3}}{\sqrt{6}+\sqrt{2}} = \sqrt{18}-\sqrt{6} = 3\sqrt{2}-\sqrt{6}$$ ½

$\therefore$ $$\frac{\sqrt{6}}{\sqrt{2}+\sqrt{3}}+\frac{3\sqrt{2}}{\sqrt{6}+\sqrt{3}}-\frac{4\sqrt{3}}{\sqrt{6}+\sqrt{2}} = 3\sqrt{2}-2\sqrt{3}+2\sqrt{3}-\sqrt{6}-3\sqrt{2}+\sqrt{6}$$ ½

$$= 0$$ ½

[CBSE Marking Scheme, 2012]

12. $$x^{abc} = (x^a)^{bc}$$ 1

$$= (y)^{bc}$$

$$= (y^b)^c$$ 1

$$= (z)^c$$

$$= x$$

$$x^{abc} = x^1$$

$\Rightarrow$ $$abc = 1$$ 1

[CBSE Marking Scheme, 2012]

13. $$\frac{\sqrt{2}}{\sqrt{5}+2}-\frac{2}{\sqrt{10}-2\sqrt{2}}+\frac{8}{\sqrt{2}} = \frac{\sqrt{2}(\sqrt{5}-2)}{(\sqrt{5}+2)(\sqrt{5}-2)}-\frac{2(\sqrt{10}+2\sqrt{2})}{(\sqrt{10}-2\sqrt{2})(\sqrt{10}+2\sqrt{2})}+\frac{8\sqrt{2}}{(\sqrt{2})(\sqrt{2})}$$ 1

$$= \frac{\sqrt{10}-2\sqrt{2}}{5-4}-\frac{2\sqrt{10}+4\sqrt{2}}{10-8}+\frac{8\sqrt{2}}{2}$$ 1

$$= \sqrt{10}-2\sqrt{2}-\sqrt{10}-2\sqrt{2}+4\sqrt{2} = 0$$ 1

OR

Given, $3x + 2y = 20, xy = \frac{11}{9}$

Raising to power three on both sides.

$$(3x + 2y)^3 = 20^3 \quad \frac{1}{2}$$

$$27x^3 + 8y^3 + 18xy\,(3x + 2y) = 8000 \quad \frac{1}{2}$$

$$27x^3 + 8y^3 + 18 \times \left(\frac{11}{9}\right) \times 20 = 8000 \quad (\therefore 3x + 2y = 20)\left(\because xy = \frac{11}{9}\right) \ 1$$

$$27x^3 + 8y^3 = 8000 - 440 \quad \frac{1}{2}$$

$$27x^3 + 8y^3 = 7560 \quad \frac{1}{2}$$

14. $\frac{(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3}{(a-b)^3+(b-c)^3+(c-a)^3}$

Both Numerator and Denominator are of the form $a^3 + b^3 + c^3$ ½

We know that when $a + b + c = 0$

then $a^3 + b^3 + c^3 = 3abc$ ½

For Numerator, $a^2 - b^2 + b^2 - c^2 + c^2 - a^2 = 0$

For Denominator , $a - b + b - c + c - a = 0$

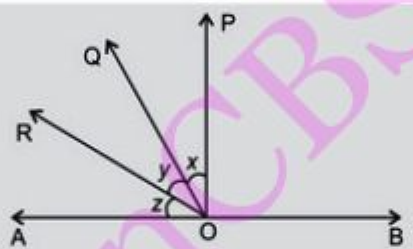
$$\therefore \quad \frac{(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3}{(a-b)^3+(b-c)^3+(c-a)^3} = \frac{3\times(a^2-b^2)(b^2-c^2)(c^2-a^2)}{3(a-b)(b-c)(c-a)} \quad 1$$

$$= \frac{(a-b)(a+b)(b-c)(b+c)(c-a)(c+a)}{(a-b)(b-c)(c-a)} \quad \frac{1}{2}$$

$$= (a+b)(b+c)(c+a). \quad \frac{1}{2}$$

[CBSE Marking Scheme, 2012]

15.



$OP \perp AB$

$\Rightarrow \quad \angle POA = 90°$ ½

Let, $\angle POQ = a$

$\therefore \quad \angle QOR = 3a$

$\angle ROA = 5a$ ½

$\Rightarrow \quad a + 3a + 5a = 90°$

$9a = 90°$ ½

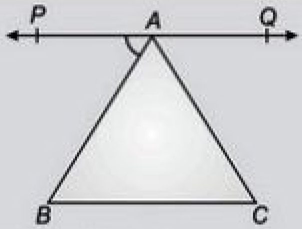
$a = 10°$

$\therefore \quad x = 10°$ ½

$y = 3 \times 10° = 30°$ ½

$z = 5 \times 10° = 50°$. **[CBSE Marking Scheme, 2012, 2014]** ½

OR



Through vertex A, draw $PAQ \parallel BC$ ½

$\therefore$ $\angle PAB = \angle ABC$ (Alternate angles) ½

$\angle QAC = \angle ACB$ (Alternate angles) ½

Adding above 2 equalities, $\angle PAB + \angle QAC = \angle ABC + \angle ACB$ ½

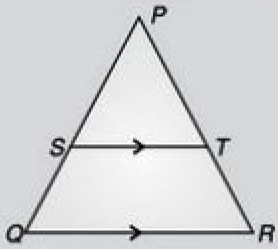
Adding $\angle BAC$ to both sides, we get ½

$$\angle PAB + \angle QAC + \angle BAC = \angle ABC + \angle ACB + \angle BAC$$

$\Rightarrow$ $180° = \angle ABC + \angle ACB + \angle BAC.$ (Linear pair) ½

[CBSE Marking Scheme, 2012]

16.



½

$PQ = PR \Rightarrow \angle PQR = \angle PRQ$ (Angles opp. to equal sides) ½

$ST \parallel QR \Rightarrow \angle PST = \angle PQR$ (Corresponding angles) ½

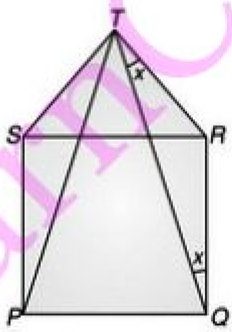
$\angle PTS = \angle PRQ$ (Corresponding angles) ½

$\therefore$ $\angle PST = \angle PTS$ ½

$\Rightarrow$ $PS = PT.$ (Sides opp. to equal angles) ½

[CBSE Marking Scheme, 2012]

17. $PQRS$ is a square.



(i) SRT is an equilateral triangle.

$\therefore$ $\angle PSR = 90°, \angle TSR = 60°$ ½

$\Rightarrow$ $\angle PSR + \angle TSR = 150°.$

Similarly, $\angle QRT = 150°$

ΔPST and ΔQRT, we have $PS = QR$ (S)

In $\angle PST = \angle QRT = 150°$ (A) and $ST = RT$ (S) ½

By SAS, $\Delta PST \cong \Delta QRT$

$\Rightarrow$ $PT = QT$ (By c.p.c.t.) **Proved.**

(ii) In ΔTQR, $QR = RT$ (Square and equilateral Δ on same base) ½

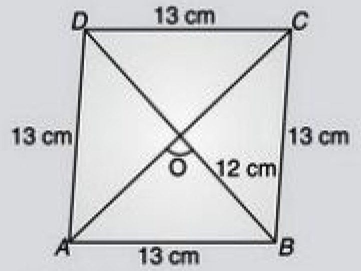
$\Rightarrow$ $\angle TQR = \angle QTR = x$ ½

$\therefore$ $x + x + \angle QRT = 180°$

$2x + 150° = 180° \Rightarrow 2x = 30°$

$\therefore$ $x = 15°$. **Proved. 1**

18. Rhombus,



Perimeter = 52 cm 1

$$\text{Side} = \frac{52}{4} = 13 \text{ cm}$$

Diagonal = 24 cm 1

$OB = OD = 12$ cm

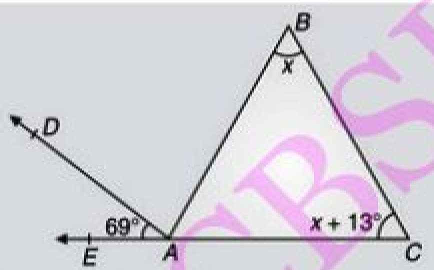
$$OA = \sqrt{13^2 - 12^2} = \sqrt{169 - 144} = \sqrt{25} = 5$$ ½

$$\text{Area of rhombus} = 4 \times \frac{1}{2} \times 5 \times 12$$ ½

Area = 120 cm^2

[CBSE Marking Scheme, 2012]

19.



$\angle EAD + \angle DAC = 180°$ (Linear pair)

$\Rightarrow$ $69° + \angle DAC = 180°$ ½

$\Rightarrow$ $\angle DAC = 180° - 69° = 111°$

Let, $\angle CAB = y$

$\angle BAD = 2y$

Then, $y + 2y + 69 = 180$ (Angle sum property of a triangle)

$\Rightarrow$ $3y = 180 - 69 = 111$

$\Rightarrow$ $y = 37°$

$\angle CAB = y = 37$

$\angle BAD = 2y = 2 \times 37° = 74°$

$x + x + 13° = 69° + 74° = 143°$ (Exterior Angle) ½

$2x = 130°$ ½

$x = 65°$ ½

$\angle C = x + 13° = 65° + 13° = 78°$ ½

$\angle B = x = 65°$

Thus, $\angle BAC = 37°$. ½

[CBSE Marking Scheme, 2012, 2014]

20. In the ΔQRT, $90° + 40° + x = 180°$

$x = 180° - 130° = 50°$ **1**

In the ΔPSR, Ext $PSR = y = x + 30°$

$\Rightarrow$ $y = 50° + 30° = 80°$ **1**

and $z = 180° - y$

$= 180° - 80° = 100°$ **1**

SECTION 'D'

21.
$$p(x) = 2x^3 - 9x^2 + x + 12$$
$$p(-1) = 2(-1)^3 - 9(-1)^2 + (-1) + 12 \quad \tfrac{1}{2}$$
$$= -2 - 9 - 1 + 12$$
$$= 0$$

$\Rightarrow x + 1$ is a factor of $f(x)$ **½**

$$p\left(\frac{3}{2}\right) = 2\left(\frac{3}{2}\right)^3 - 9\left(\frac{3}{2}\right)^2 + \frac{3}{2} + 12 \quad \tfrac{1}{2}$$
$$= 2\left(\frac{27}{8}\right) - 9\left(\frac{9}{4}\right) + \frac{3}{2} + 12$$
$$= \frac{27}{4} - \frac{81}{4} + \frac{3}{2} + 12$$
$$= \frac{27 - 81 + 6 + 48}{4}$$
$$= 0$$

$\Rightarrow 2x - 3$ is a factor of $p(x)$ **½**

$$(x + 1)(2x - 3) = 2x^2 - x - 3. \quad 1$$
$$(2x^3 - 9x^2 + x + 12) \div (2x^2 - x - 3) = x - 4$$

$\Rightarrow$ Remaining factor is $x - 4$. **1**

[CBSE Marking Scheme, 2013]

OR

Alternative Method :

Given, $a + b + c = 3x$

or $3x - a - b - c = 0$ **1**

$\therefore$ $x - a + x - b + x - c = 0$ **1**

$\Rightarrow$ $(x - a)^3 + (x - b)^3 + (x - c)^3 = 3(x - a)(x - b)(x - c)$ **1**

$\Rightarrow$ $(x - a)^3 + (x - b)^3 + (x - c)^3 - 3(x - a)(x - b)(x - c)$

$= 3(x - a)(x - b)(x - c) - 3(x - a)(x - b)(x - c)$ **1**

$= 0.$

22.
$$\frac{4}{(2187)^{-\frac{3}{7}}} - \frac{5}{(256)^{-\frac{1}{4}}} + \frac{2}{(1331^2)^{-\frac{1}{3}}} = 4 \times (2187^{\frac{1}{7}})^3 - 5 \times 256^{1/4} + 2\,(1331^{\frac{1}{3}})^2 \quad 1\tfrac{1}{2}$$
$$= 4 \times \left((3^7)^{\frac{1}{7}}\right)^3 - 5 \times (4^4)^{1/4} + 2 \times \left((11^3)^{\frac{1}{3}}\right)^2 \quad 1\tfrac{1}{2}$$
$$= 4 \times 27 - 5 \times 4 + 2 \times 121$$
$$= 108 - 20 + 242 = 330 \quad 1$$

[CBSE Marking Scheme, 2012]

23.
$$\begin{aligned} LHS &= 2x^3 + 2y^3 + 2z^3 - 6xyz \\ &= 2(x^3 + y^3 + z^3 - 3xyz) \quad 1 \\ &= 2[(x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)] \quad 1 \\ &= [(x + y + z)(2x^2 + 2y^2 + 2z^2 - 2xy - 2yz - 2zx)] \\ &= [(x + y + z)(x^2 - 2xy + y^2 + y^2 - 2yz + z^2 + z^2 - 2zx + x^2)] \quad 1 \\ &= (x + y + z)[(x - y)^2 + [(y - z)^2 + (z - x)^2] \\ &= R.H.S \end{aligned}$$

Hence proved. ½

$$\begin{aligned} 2(13)^3 + 2(14)^3 + 2(15)^3 - 6 \times 13 \times 14 \times 15 \\ &= (13 + 14 + 15)[(13 - 14)^2 + (14 - 15)^2 + (15 - 13)^2] \\ &= 42 \times (1 + 1 + 4) \\ &= 42 \times 6 = 252 \quad ½ \end{aligned}$$

[CBSE Marking Scheme, 2013]

24. (i) $(998)^3 = (1000 - 2)^3$

We know that

$$(a - b)^3 = a^3 - b^3 - 3ab(a - b) \quad 1$$

Hence,
$$\begin{aligned} (998)^3 &= (1000)^3 - (2)^3 - (3)(1000)(2)(1000 - 2) \\ &= 1000000000 - 8 - 6000 \times 998 \\ &= 1000000000 - 5988008 \\ &= 994011992. \quad 1 \end{aligned}$$

(ii) Algebraic Identities 1

(iii) Satisfaction solves the identity crisis among people. 1

25. $p(x) = ax^4 + 2x^3 - 3x^2 + bx - 4$

$x^2 - 4$ or $(x - 2)(x + 2)$ is a factor of $p(x)$,

then put $x = 2$ in $p(x) \Rightarrow p(2) = 0$

$$\begin{aligned} a(2)^4 + 2(2)^3 + 3(2)^2 + b \times 2 - 4 &= 0 \\ 16a + 16 - 12 + 2b - 4 &= 0 \\ 16a + 2b &= 0 \quad \text{... (1) 1} \\ 8a + b &= 0 \end{aligned}$$

Again put $x = -2$ in $p(x). \Rightarrow p(-2) = 0$

$$\begin{aligned} a(-2)^4 + 2(-2)^3 - 3(-2)^2 + b \times (-2) - 4 &= 0 \\ 16a - 16 - 12 - 2b - 4 &= 0 \quad \text{... (2) 1} \\ 16a - 2b &= 32 \\ 8a - b &= 16 \end{aligned}$$

Adding eqs. (1) and (2),

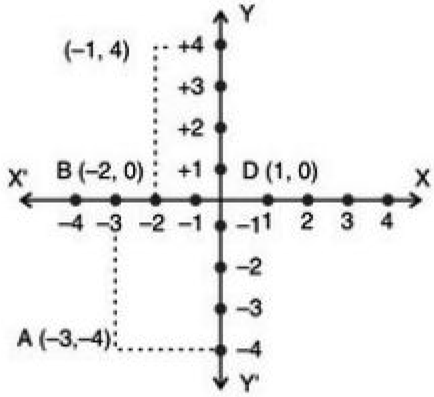
$$16a = 16 \Rightarrow a = 1 \quad ½$$

By equation (1),

$$\begin{aligned} 8 \times 1 + b = 0 &\Rightarrow b = -8 \quad ½ \\ p(x) &= x^4 + 2x^3 - 3x^2 - 8x - 4 \\ &= (x^2 - 4)(x^2 + 2x + 1) \\ &= (x - 2)(x + 2)(x + 1)^2. \quad 1 \end{aligned}$$

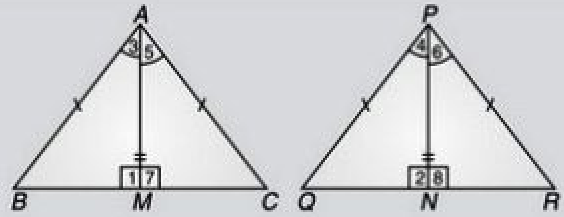
$$\begin{array}{r|l} & x^2 + 2x + 1 \\ \hline x^2 - 4 & x^4 + 2x^3 - 3x^2 - 8x - 4 \\ & x^4 \quad\quad - 4x^2 \\ & - \quad\quad\quad + \\ \hline & 2x^3 + x^2 - 8x - 4 \\ & 2x^3 \quad\quad - 8x \\ & - \quad\quad\quad + \\ \hline & x^2 - 4 \\ & x^2 - 4 \\ & - \quad + \\ \hline & 0 \end{array}$$

26.



A (–3, –4)	3rd quad.	1
B (–2, 0)	on X-axis	1
C (–1, 4)	2nd quad.	1
D (1, 0)	on X-axis	1

27.



In ΔAMB and ΔPNQ,

$AB = PQ$ (Given)

$AM = PN$ (Given)

$\angle 1 = \angle 2 = 90°$

($AM \perp BC$ & $PN \perp QR$)

$\Rightarrow$ $\Delta AMB \cong \Delta PNQ$ (By *RHS*)

$\Rightarrow$ $\angle 3 = \angle 4$ (By c.p.c.t.) **2**

Similarly, $\Delta AMC \cong \Delta PNR$

$\Rightarrow$ $\angle 5 = \angle 6$

(In congruent triangles, corresponding angles are equal)

$\therefore$ In ΔABC and ΔPQR,

$AB = PQ$ (Given)

$AC = PR$ (Given)

$\angle A = \angle P$

$(\angle 3 + \angle 5 = \angle 4 + \angle 6)$ (Proved)

$\Rightarrow$ $\Delta ABC \cong \Delta PQR$. (By *SAS*) **2**

[CBSE Marking Scheme, 2012]

28. $\angle XAK + \angle KAH = 180°$ (Linear pair)

$\angle KAH = 180° - 137° = 43°$ ($\therefore \angle CAX = \angle XAK = 137°$, Given)

$AB = AC$ (Given) **1**

$\therefore$ $\angle ABC = \angle ACB$ (Angles opp to equal sides are equal)

$\angle ABC + \angle ACB = 137°$, (ext. angle)

$\therefore$ $\angle ABC = \angle ACB = \frac{137°}{2} = 68.5°$ **½**

$CH = CB$ (Given)

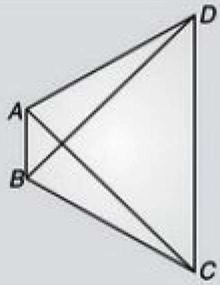
$\Rightarrow$ $\angle CBA = \angle CHB = 68.5°$ **½**

$\therefore \quad \angle HCB = 180° - 137° = 43°$ **1**

$\angle CHK = \angle HCB = 43°$. (Alternate angles) **1**

[CBSE Marking Scheme, 2012, 2013]

OR



Proof : In ΔABC, $BC > AB$ ($\because$ *AB* smallest side)

$\angle BAC > \angle ACB$ ...(i)

In ΔACD, $CD > AD$ ($\because CD$ greatest side) ½

$\angle CAD > \angle ACD$ ...(ii)

Adding (i) and (ii), we get ½

$$\angle BAC + \angle CAD > \angle ACB + \angle ACD$$

$\Rightarrow \quad \angle BAD > \angle BCD$

$\angle A > \angle C$ **1**

In ΔABD, $AD > AB$

$\therefore \quad \angle ABD > \angle ADB$ ...(iii) ½

In ΔBCD, $CD > BC$

$\therefore \quad \angle CBD > \angle BDC$ ...(iv) ½

Adding (iii) and (iv), we get

$$\angle ABD + \angle CBD > \angle ADB + \angle BDC$$

$$\angle ABC > \angle ADC$$

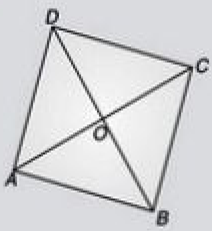
$\angle B > \angle D$ **1**

Hence, $\angle A > \angle C$ and $\angle B > \angle D$.

[CBSE Marking Scheme, 2012]

29. By triangle inequality property,

In ΔABC,	$AB + BC > AC$	Using the fact that sum of two sides of a triangle is greater than the third side	...(1) ½
In ΔBCD,	$BC + CD > BD$		...(2) ½
In ΔCDA,	$CD + DA > AC$		...(3) ½
In ΔDAB,	$DA + AB > BD$		...(4) ½



Adding (1), (2), (3) and (4), we get

$AB + BC + BC + CD + CD + DA + DA + AB > AC + BD + AC + BD$ **1**

$$2(AB + BC + CD + DA) > 2(AC + BD)$$

Hence, Perimeter > Sum of its diagonals. **1**

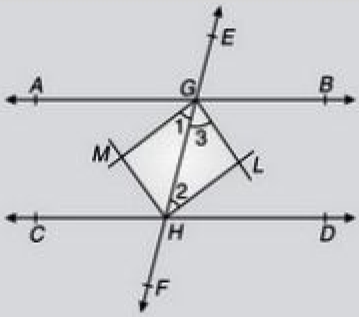
[CBSE Marking Scheme, 2012, 2013]

30. $\angle AGH = \angle GHD$ ½

$\Rightarrow \quad \frac{1}{2}\angle AGH = \frac{1}{2}\angle GHD \Rightarrow \angle 1 = \angle 2$

$\Rightarrow \quad GM \parallel LH$

Similarly, $GL \parallel MH$



⇒ *GMHL* is a parallelogram 1

$$\angle BGH + \angle GHD = 180°$$

$$\Rightarrow \quad \frac{1}{2}\angle BGH + \frac{1}{2}(\angle GHD) = 90°$$

$$\Rightarrow \quad \angle 3 + \angle 2 = 90°$$ ½

In ΔGLH, $\angle GLH = 180° - (\angle 2 + \angle 3)$

$= 180° - 90°$ 1

$$\Rightarrow \quad \angle GLH = 90°$$

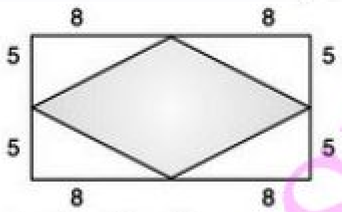
$$\Rightarrow \quad \angle GMH = 90°$$

So, $\angle MGL + \angle GLH = 180° \Rightarrow \angle MGL + 90° = 180°$

$$\Rightarrow \quad \angle MGL = 90° \Rightarrow \angle MHL = 90°.$$ 1

[CBSE Marking Scheme, 2012, 2013]

31.



Area of rectangle = 16×10

= 160 sq. units

Four right angled triangles are cut from the paper to form the rhombus.

Area of each triangle = $\frac{1}{2} \times 8 \times 5$ 1

= 20 sq units

Hence, area of four triangles = 80 sq. units.

Hence, area of the rhombus = 160 – 80

= 80 sq. units 1

Now the area of the base triangle with sides 5, 6, 5 units

$$s = \frac{5+6+5}{2}$$

= 8 1

By Heron's formula, Area = $\sqrt{s(s-a)(s-b)(s-c)}$

$= \sqrt{8(8-5)(8-6)(8-5)}$

$= \sqrt{8\times3\times2\times3}$

= 12

Therefore the area of the kite is 80 + 12 = 92 sq. units. 1

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