GREENLAWNS HIGH SCHOOL

DATE: 13-02-2025 **STD. VIII** **MARKS: 80**

DAY: Thursday **MATHEMATICS (FINALS)** **TIME: 2 hours**

[FIGURES TO THE RIGHT INDICATE FULL MARKS]

1. Attempt all questions from **Section A** and from **Section B**.
2. All working including rough work must be clearly shown and done on the same page as the rest of the answer.
3. Omission of essential steps will result in loss of marks.

Section-A

Question - 1 **15m**

Choose the correct answers to the questions from the given options.

(Do not copy the questions, write the correct answers only.)

i. 5 and x are factors of
   a. $2x$
   b. x
   c. 15
   d. $5x$

ii. Which of the following is an example of direct variation
   a. The number of mangoes in a bag and its weight
   b. Number of pens and its cost
   c. Money deposited in a bank and its interest
   d. All of the above

iii. The base of a right-angle triangle is 12cm and its height is 5cm. The area of the triangle is
   a. $30\ cm^2$
   b. $40\ cm^2$
   c. $50\ cm^2$
   d. $60\ cm^2$

iv. Which of the following properties of a parallelogram is ***incorrect***
   a. Opposite sides of a parallelogram are equal
   b. Opposite angles of a parallelogram are equal
   c. Diagonals of parallelogram bisect each other
   d. Diagonals of a parallelogram are equal

v. The value of $0.9^2 - 1.08 + 0.6^2$
   a. 0.09
   b. 0.03
   c. 0.02
   d. 0.06

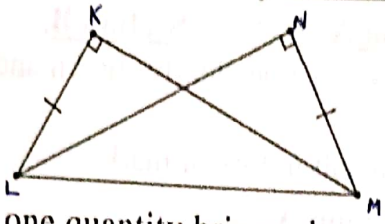
vi. The set $A = \{x: x\ is\ a\ composite\ number, x \epsilon W\}$ is a/an _____ set
   a. finite
   b. infinite
   c. null
   d. singleton

vii. The value $(x + 12)(x + 1)$.
   a. $x^2 + 13x - 13$
   b. $x^2 + 13x + 13$

c. $x^2 + 13x - 12$
d. $x^2 + 13x + 12$

viii. ΔKLM and ΔNML are right angle triangle with $\angle K = \angle N = 90°$ and $KL = NM$, then $\Delta KLM \cong \Delta NML$ by _____ test

a. SSS
b. SAS
c. RHS
d. ASA

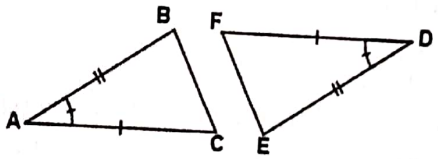


xi. If an increase in one quantity brings about a corresponding decrease in the other and vice versa, then the two quantities vary
a. directly
b. inversely
c. sometimes directly and sometimes inversely
d. none of the above.

x. Which type of quadrilateral has exactly one pair of opposite sides parallel
a. Trapezium
b. Square
c. Rectangle
d. Kite

xi. The volume of a cuboid is 120 cm^3, If its length is 6 cm and its breadth is 4cm, then its height will be.
a. 4 cm
b. 5 cm
c. 6 cm
d. 7 cm

xii. In the figure given alongside $\Delta ABC \cong \Delta DEF$ by SAS test, if $\angle A = 30°$ then $\angle D = ?$
a. 30°
b. 20°
c. 40°
d. 60°



xiii. The surface area of a cube with side 4cm is
a. $67cm^2$
b. $96cm^2$
c. $66cm^2$
d. $46cm^2$

xiv. If $C = \{2,4,6,7,8\}$ and $D = \{5,6,7,8\}$, then $C - D$
a. $\{2,4,6,7,8\}$
b. $\{2,4\}$
c. $\{6,7,8\}$
d. $\{4,6,7\}$

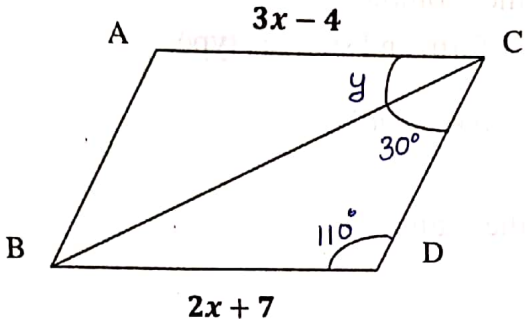
xv. The factor of $(7x^2 - 63y^2)$
a. $(7x - 9y)(7x + 9y)$
b. $(7y - 9x)(7y + 9x)$
c. $9(x - 3y)(x + 3y)$
d. $7(x - 3y)(x + 3y)$

Question -2

i. If x and y are in direct variation, then complete the following table **4m**

x	3	5	---	---	10
y	45	---	90	120	---

ii. In a parallelogram ABCD, if $AC = 3x - 4, BD = 2x + 7$, $\angle BDC = 110°, \angle BCD = 30°$, find the value of x and y. **4m**



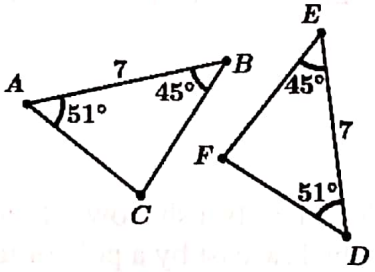
iii. The total surface area of cube is 384 cm^2, find its volume. **4m**

Question - 3

i. Factorize **4m**

a. $1 - 9(3x - 5y)^2$
b. $6(2a + 3b)^2 - 8(2a + 3b)$

ii. From the information given in the figure alongside **4m**



Show that

a. $\Delta ABC \cong \Delta DEF$
b. $AC = FD$
c. Find $\angle C$

iii. If $A = \{$ letters of the word 'SECUNDRABAD'$\}$ and **5m**
$B = \{$letters from the word 'BENGALURU'$\}$,
then write set A and B in the roster form
and find

a. $A \cup B$
b. $A \cap B$
c. $A - B$
d. $B - A$

Section – B

Question - 4

i. At a camp there is sufficient food for 500 scouts for 21 days. If 250 more scouts join the camp, how long will the food last? **3m**

ii. In a square □UVWX, $UW = 9x$ and $VX = 6x + 18$, find x and VX **3m**

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TEST PAPER

Question No | QUESTION | Marks Allotted

GRADE-8 MATHEMATICS

SOLUTION

NAME: GERRY FERNANDES

SECTION – A

[Q1]

1. (d) $5x$
2. (d) All of the above
3. (a) 30 cm^2
4. (d) diogonals of a parallelogram are equal
5. (a) 0.09
6. (b) Infinite set
7. (d) $x^2 + 13x + 12$
8. (c) RHS
9. (b) inversely
10. (a) Trapezium
11. (b) 5cm
12. (a) 30°
13. (b) 96 cm^2
14. (b) $\{2, 4\}$
15. (d) $7(x-3y)(x+3y)$

[Q2] 4M

(i) $x_1 = 3$, $x_2 = 5$, $x_3 =$, $x_4 =$, $x_5 = 10$

$y_1 = 45$, $y_2 =$, $y_3 = 90$, $y_4 = 120$, $y_5 =$

Since x, y are in direct variation

$$\frac{x_1}{y_1} = \frac{x_2}{y_2} = \frac{x_3}{y_3} = \frac{x_4}{y_4} = \frac{x_5}{y_5}$$

$\therefore \frac{3}{45} = \frac{5}{y_2} \Rightarrow y_2 = 15 \times 5 = \boxed{75}$ (1m)

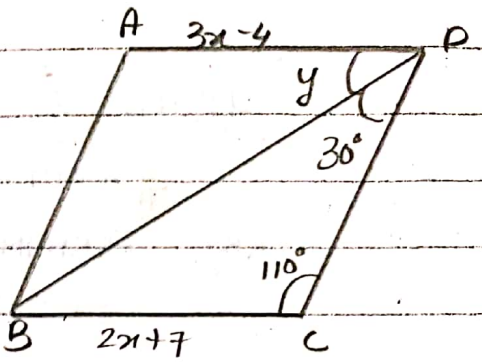
$\therefore \frac{3}{45} = \frac{x_3}{90} \Rightarrow x_3 = \frac{3 \times 90}{45} = \boxed{6}$ (1m)

$\therefore \frac{3}{45} = \frac{x_4}{120} \Rightarrow x_4 = \frac{120 \times 3}{45} = \boxed{8}$ (1m)

$\therefore \frac{3}{45} = \frac{10}{y_5} \Rightarrow y_5 = \frac{45 \times 10}{15} = \boxed{150}$ (1m)

Question No.

(ii)



4M

In a parallelogram opp sides are equal (1/2)

$\therefore AD = BC$ (1/2)

$3x - 4 = 2x + 7$

$\boxed{x = 11}$ (1m)

adjacent angles in a parallelogram are supplementary (1/2)

$110° + y + 30° = 180°$ (1/2)

$\boxed{y = 40°}$ (1m)

(iii) Let 'a' be the side of the cube.

$TSA = 6a^2$

$384 = 6a^2$ (1m)

$a^2 = \frac{384}{6} = 64$

4M

$\boxed{a = 8\,cm}$ (1m)

$V = a^3$ (1m)

$= (8)^3$

$\boxed{V = 512\,cm^3}$ (1m)

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Question No. | QUESTION | Marks Alloted

[Q3]

(i) a. $1 - 9(3x-5y)^2$

$= 1 - [3(3x-5y)]^2$ (1/2)

$= 1 - [(9x-15y)]^2$ (1/2)

$= 1^2 - (9x-15y)^2$

$= [1-(9x-15y)][1+(9x-15y)]$

$= (1-9x+15y)(1+9x-15y)$ (1m)

4m

b. $6(2a+3b)^2 - 8(2a+3b)$

$= 2(2a+3b)[3(2a+3b)-4]$ (1m)

$= 2(2a+3b)(6a+9b-4)$ (1m)

(ii) $\angle B = \angle E = 45^\circ$

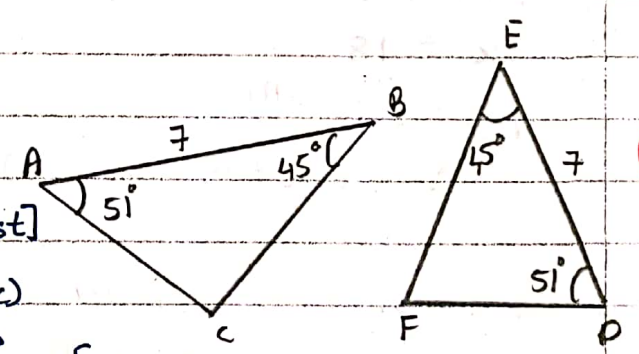
$BA = FD = 7\text{cm}$ } (1m)

$\angle A = \angle E = 45^\circ$ (1m)

$\therefore \Delta ABC \cong \Delta DEF$ [By SAS Test]

$\therefore AC = FD$ (1m) (cpctc)

$\angle C = 180^\circ - 45^\circ - 51^\circ = 84^\circ$ (1m) [Angle sum property]



4m

(iii) $A = \{s, e, c, u, n, d, r, a, b\}$ (1/2), $B = \{b, e, n, g, a, l, u, r\}$ (1/2)

(a) $A \cup B = \{s, e, c, u, n, d, r, a, b, g, l\}$ (1)

(b) $A \cap B = \{e, u, n, r, a, b\}$ (1m)

(c) $A - B = \{s, c, d\}$ (1m)

(e) $B - A = \{g, l\}$ (1m)

5m

Question No.

SECTION - B

[84] (i) Let food last for 'x' days

No of scouts	500	750
No of days food last	21	x

If No of days ↑ No of day food last ↓ (1m) OR

It is inverse Variation

$\therefore 500 \times 21 = 750 \times x$ (1m) OR

$x = \frac{500 \times 21}{750} = 14$ days

$\therefore$ The food will last for 14 days (1m) OR

3m

(ii) $UW = VX$ [diagonals of a square are equal

$9x = 6x + 18$ (1/2)

$3x = 18$

$\boxed{x = 6}$ (1m)

$VX = 6x + 18 = 6(6) + 18 = \boxed{54}$ (1/2) (1m)

3m

(iii) Dimension of cuboid.

$l = 4 + 4 + 4 = 12$ cm (1m)

$b = 4$ cm (1m)

$h = 4$ cm

$SA = 2(lb + bh + lh)$

$= 2[12 \times 4 + 4 \times 4 + 4 \times 12]$ (1m)

$= 2[48 + 16 + 48]$

$= 2 \times 112$

$SA = 224\ cm^2$ (1m)

4m

$\therefore$ The surface area of the resulting cuboid is $224\ cm^2$

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Question No. | QUESTION | Marks Allotted

[Q5]

(i) $x^2 - 11x + 30$

$= x^2 - 5x - 6x + 30$ (1m)

$= x(x-5) - 6(x-5)$ (1m)

$= (x-5)(x-6)$ (1m)

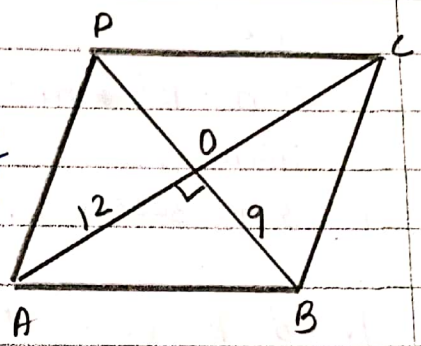
3m

(ii) $d_1 = 24$ cm

$d_2 = 18$ cm

$AO = \frac{1}{2} \times 24 = 12$ cm (1/2) [diagonals of a rhombus are ⊥ bisector of each other (1/2)]

$OB = \frac{1}{2} \times 18 = 9$ cm



3m

$AB = \sqrt{12^2 + 9^2} = \sqrt{225} = 15$ cm (1/2)

(1m) $\therefore AB = BC = DC = DA = 15$ cm (1/2)

$\therefore$ length of each side of the rhombus is 15cm

(iii)

(a) $A = \{\ \}$ (1m)

It is an empty set (1m)

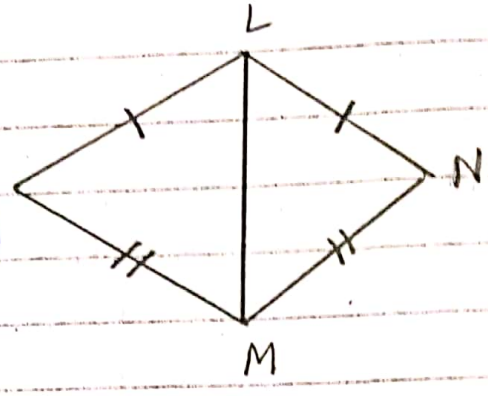
(b) $B = \{0\}$ (1m)

It is a singleton set (1m)

4m

Question No.

[Q6] (i) $LK = LN$ } (1/2) Given
$KM = MN$ }
$LM = LM$ (1/2) (common side)
$\triangle LKM \cong \triangle LNM$ (1m) (By sss test)
$\angle K = \angle N$ [cpctc] (1/2)
$\therefore \angle N = 40^\circ$ (1/2)



3m

(ii)

Wall	Brick
$l = 10m = 1000cm$ (1/2)	$l = 25cm$
$b = 40cm$	$b = 12cm$
$h = 3m = 300cm$ (1/2)	$h = 8cm$

No of bricks $= \frac{1000 \times 40 \times 300}{25 \times 12 \times 8} = 5000$ (1/2) (1m) (1/2)

3m

(iii) (a) 52×48
$= (50+2)(50-2)$
$= (50^2 - 2^2)$ (1m)
$= 2500 - 4$
$= 2496$ (1m)

(b) $(9.9)^2 = (10-0.1)^2$
$= (10)^2 - 2(10)(0.1) + (0.1)^2$ (1m)
$= 100 - 2 + 0.01$
$= 98.01$ (1m)

4m

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Question No.	QUESTION	Marks Alloted

[B7]

(i) length of the pole 840 1225
length of the shadow 480 x

It is direct Variation (1m)

$\frac{840}{480} = \frac{1225}{x}$ (1m) OR

$x = \frac{480 \times 1225}{840} = 700$ (1m)

3m

(ii)

$V = \{1,2,3,4,5,6,7,8,9\}$ (1/2)

$B = \{2,3,5,7\}$ (1/2)

$A' = \{2,4,6,8\}$ (1m) $B' = \{1,4,6,8,9\}$ (1m)

3m

(iii)

(a) $(2p-3q)^2$

$= (2p)^2 - 2(2p)(3q) + (3q)^2$ (1m)

$= 4p^2 - 12pq + 9q^2$ (1m)

(b) $(x-2y+z)^2$

$= (x)^2 + (-2y)^2 + z^2 + 2(x)(-2y) + 2(-2y)(z) + 2(x)(z)$ (1m)

$= x^2 + 4y^2 + z^2 - 4xy - 4yz + 2xz.$ (1m)

4m