

GREENLAWNS HIGH SCHOOL

FINAL EXAMINATION

DATE: 20-02-2024

STD. VIII

MARKS: 80

DAY: Tuesday

MATHEMATICS

TIME: 2 hours 30 Mins

[FIGURES TO THE RIGHT INDICATE FULL MARKS]

Section A

(Attempt all questions from this section)

Question – 1

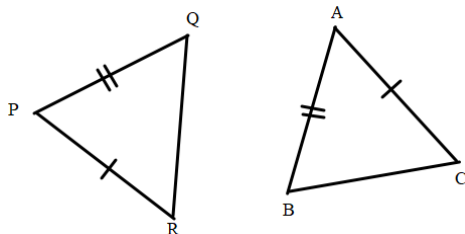
(15m)

Choose the correct answer to the questions from the questions given below.

- i. The cardinality of the set $A = \{x: x \text{ is a multiple of } 2, 2 \leq x \leq 8\}$ is
 - a) 4
 - b) 2
 - c) 3
 - d) 8
- ii. If the set $A = \{1,3,5\}$ and $B = \{3,5,7\}$, then $A - B =$
 - a) $\{1,2\}$
 - b) $\{3\}$
 - c) $\{3,5\}$
 - d) $\{1\}$
- iii. Which of the following statement about the universal set is correct?
 - a) It is always empty.
 - b) It is the set of all elements under consideration.
 - c) It contains only prime numbers.
 - d) It is same as the empty.
- iv. If y varies directly with x , when $x = 3$ then $y = 21$, what is the value of y when $x = 7$
 - a) 7
 - b) 9
 - c) 15
 - d) 49
- v. Identify which of the following is an example of inverse variation.
 - a) Number of articles purchased and its cost.
 - b) Distance covered by a car and the petrol consumed.
 - c) The time taken to complete a task and the number of people.
 - d) Amount of money deposited and the interest earned.
- vi. If x is in direct variation with y , if y increases, then
 - a) x will also increase
 - b) x will decrease
 - c) x will remain the same
 - d) None of the above

- vii. The sum of a number and 8 is 20, what is the number.
- a) 12
 - b) 15
 - c) 8
 - d) 28
- viii. If $A = \{4,5,8\}$ and $B = \{1,2,3\}$, then sets A and B are.
- a) Equal sets
 - b) Equivalent sets
 - c) Infinite sets
 - d) None of the above
- ix. If a man's present age is 5 more than thrice his son's age, and his son's present age is 8 years, what is the man's present age.
- a) 21
 - b) 26
 - c) 29
 - d) 36
- x. A quadrilateral in which the adjacent sides are equal is called a _____
- a) Square
 - b) Rectangle
 - c) Rhombus
 - d) Kite
- xi. Adjacent angles of a parallelogram are _____
- a) Equal
 - b) Complementary
 - c) Supplementary
 - d) None of the above
- xii. For the pair of equations,
 $x + y = 1$
 $x - y = 11$, the value of x is
- a) $x = 4$
 - b) $x = 1$
 - c) $x = 6$
 - d) $x = 0$
- xiii. If the adjacent sides of a parallelogram are of length 7 cm and 10 cm then the perimeter of the parallelogram will be
- a) 24 cm
 - b) 34 cm
 - c) 44 cm
 - d) 54 cm

- xiv. In the figure given below for ΔPQR to be congruent to ΔABC by SAS criteria which additional information is needed.



- a) $\angle P = \angle A$
 b) $\angle Q = \angle A$
 c) $\angle P = \angle C$
 d) $\angle R = \angle A$
- xv. If $(x + 2)$ is an even number then the next consecutive even number will be
 a) x
 b) $(x + 2)$
 c) $(x + 1)$
 d) $(x + 4)$

Question - 2

- i. If (4m)
 $A = \{x : x \in W, x > 500\}$
 $B = \{x : x \text{ is an even prime number}\}$
- a) Write set A in the roster form
 b) Write set B in the roster form
 c) Identify the type of set A is
 d) Identify the type of set B is

- ii. If x and y are in direct variation, complete the following table (4m)

x	4	8	-	20	28
y	7	-	21	-	-

- iii. Solve to find the value of x (4m)

$$\frac{x+8}{7} + \frac{x-1}{3} = \frac{x}{2}$$

Question - 3

- i. Solve the following equations simultaneously. (4m)
 $x - 7 = y$
 $3x - 4y = 8$
- ii. The adjacent sides of a parallelogram are in the ratio 7:4 and its perimeter is 110 cm, find the length of the sides. (4m)
- iii. If $U = \{x : x \in W, 6 \leq x \leq 11\}$ (5m)
 $A = \{6, 8, 9\}$
 $B = \{7, 8, 11\}$
 $C = \{6\}$

Find

- a) A'
- b) $A - B$
- c) $A \cap C$
- d) $B \cup C$
- e) $A' \cap B$

Section B

(Attempt any 4 questions from this section)

Question - 4

i. If 175 articles cost Rs. 7350, how many articles can be purchased in Rs. 24,024. (3m)

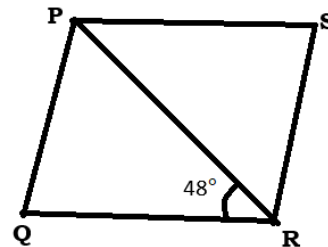
ii. Solve (3m)

$$\frac{4}{x - 2} = \frac{9}{x + 8}$$

iii. PQRS is a rhombus. (4m)

If $\angle PRQ = 48^\circ$, find

- a) $\angle QPR$
- b) $\angle PQR$
- c) $\angle PSR$
- d) $\angle PRS$

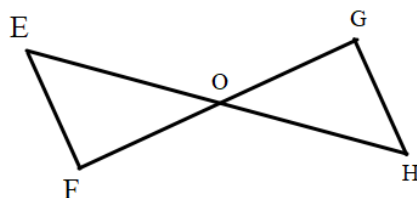


Question - 5

i. Solve the following equations simultaneously (3m)

$$\begin{aligned} 3x + y &= 7 \\ 3x + 2y &= 8 \end{aligned}$$

ii. In the figure given alongside $EF \parallel GH$, O is the midpoint of FG prove that O is the midpoint of EH (3m)



iii. A pack of sweets was distributed among 20 children and each of them received 4 sweets. How many sweets will each child get, if the number of children is reduced by 4? (4m)

Question - 6

- i. If $A = \{\text{letters of the word INTEGRITY}\}$ **(3m)**
 $B = \{\text{letters of the word RECKONING}\}$

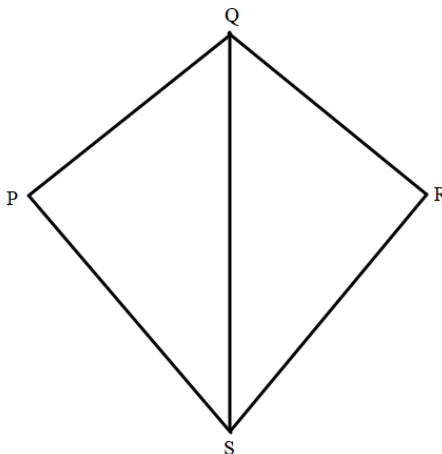
Write down the sets A and B in the roster form and hence find $A \cap B$

- ii. If 68 men can do the work in 150 days, in how many days will 60 men do the same work. **(3m)**

- iii. In the given figure, $PQ = QR$ and QS bisects $\angle PQR$ **(4m)**

a) Prove that $\Delta PQS \cong \Delta RQS$

b) If $\angle PSQ = 38^\circ$, find $\angle RSQ$



Question - 7

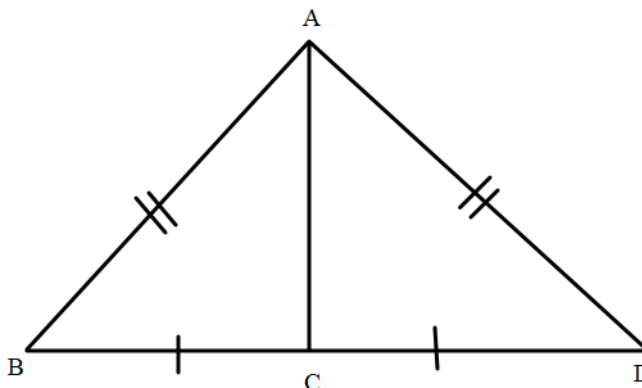
- i. If $\square ABCD$ is a parallelogram, $\angle D = 85^\circ$ and $\angle B = (x + 25)^\circ$, find the value of x . **(3m)**

- ii. If 9 more than 2 times Sarah's age is same as 5 times her age, how old is she? **(3m)**

- iii. In the adjoining figure if $AB = AD$ and $BC = CD$ **(4m)**

a) Prove that $\Delta ABC \cong \Delta ADC$

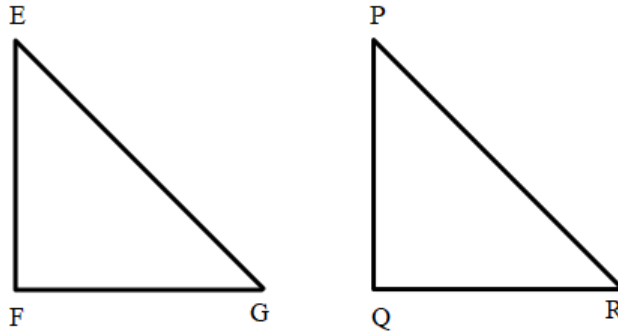
b) Find x if $\angle ABC = (2x + 11)^\circ$ and $\angle ADC = (4x + 3)^\circ$



Question - 8

i. In a square XYZW, if $XZ = x + 3$ and $YW = 2x - 4$, **(3m)**
Find the value of YW.

ii. In ΔEFG and ΔPQR if $EF \perp FG$, $PQ \perp QR$ and $\angle EGF = \angle QPR$, $FG = PQ$, **(3m)**
then prove that $\Delta GFE \cong \Delta PQR$, If $EG = 13$ cm, find PR



iii. Write the following sets in the roster form and identify the types of set. **(4m)**

a) $A = \{x : x \in N, x \text{ is a composite number}, x < 5\}$

b) $B = \{y : y \in I, -4 \leq y \leq 1\}$

Best of Luck