GREENLAWNS HIGH SCHOOL
TERMINAL EXAMINATION 2022

SUBJECT: MATHEMATICS **CLASS: IX**
TIME: 2 HOURS **MARKS: 60**

Answers to this paper must be written on the paper provided separately.
You will not be allowed to write during the reading time. This time must be spent in reading the question paper.
The time given at the head of the question paper is the time allowed for writing the answers.
Attempt all questions from Section A and any three questions from Section B.
The intended marks for the questions or parts of the questions are given in the brackets [ ].

SECTION-A (30 MARKS)

Attempt all questions from this section

Question 1

Choose the correct answers to the questions from the given options. (Do not copy the questions. Write the correct answers only.) [8]

i) In ΔABC and ΔDEF, $AB = DE$ and $\angle A = \angle D$. The two triangles will be congruent by SAS axiom if:

a) $BC = EF$
b) $AC = DE$
c) $AC = DF$
d) $BC = DE$

ii) Which of the following points lie on the negative side of the X axis?

a) (0, -4)
b) (4, 0)
c) (-4, 0)
d) (0,4)

iii) If $3 + 5 + (-8) = 0$, then the value of $3^3 + 5^3 - 8^3$ is _____ .

a) 260
b) -360
c) 360
d) 160

iv) $(16)^{3/4}$ is equal to _____.

a) 2
b) 4
c) 8
d) 16

v) In a right-angled triangle, _____ is the longest side.

a) Perpendicular
b) Hypotenuse
c) Base
d) Median

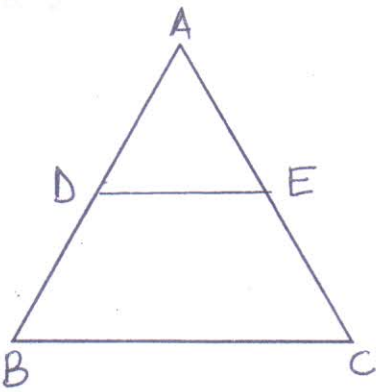
vi) The factors of the trinomial $a^2 - 11a - 80$ are _____.

a) (a - 16) (a + 5)
b) (a + 16) (a – 5)
c) (a + 16) (a + 5)
d) (a – 16) (a – 5)

vii) The rationalizing factor for $\frac{1}{\sqrt{12}}$ is _____

a) 12
b) $4\sqrt{3}$
c) $3\sqrt{4}$
d) $\sqrt{12}$

viii) In the figure given below, DE is parallel to BC and D is the midpoint of AB, then the false statement is _____.



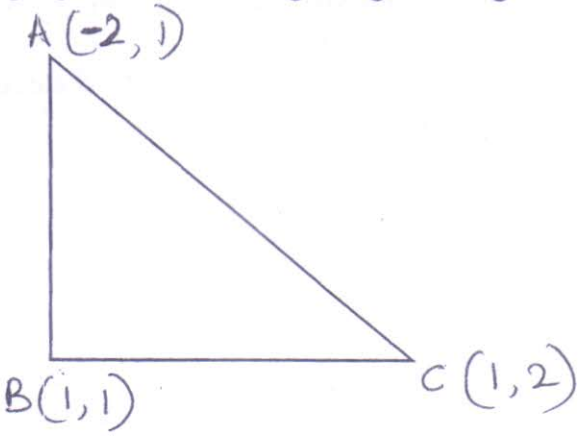
a) E is the midpoint of AC.
b) DE = $\frac{1}{2}$ BC
c) 2BC = DE
d) BC = 2DE

Question 2

a) Solve the following equations graphically. Also write the co-ordinates of the point of intersection of these lines.
$3x + 2y - 12 = 0$ and $5x - 2y - 4 = 0$. [4]

b) If $x - \frac{2}{x} = 5$, find the value of $x^3 - \frac{8}{x^3}$. [4]

c) Prove that the triangle given below is a right-angled triangle. [4]



Question 3

a) Find the compound interest on ₹ 80,000 for three years, if the rates for three successive years are 4%, 5% and 10% respectively. [3]

b) Factorize: $48ax^2 - 75ay^2$ [3]

c) Plot $\sqrt{3}$ on a number line using a ruler and compasses only. [4]

SECTION – B
(Attempt any three out of four questions from this section)

Question 4

a) Solve: $23x + 31y = 77$
$31x + 23y = 85$ [4]

b) A man goes 150m towards east and then 200m towards north. How far is he from the starting point? [3]

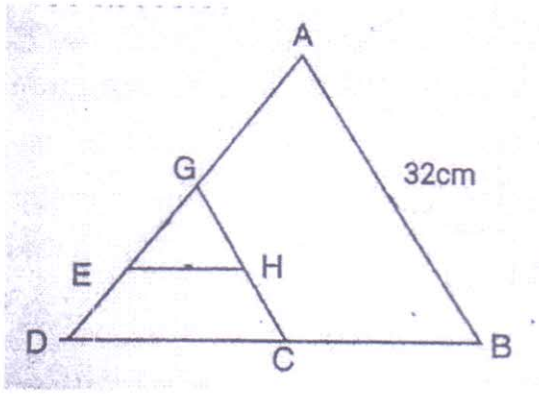
c) Simplify: $[\{\sqrt[4]{x^{-3/4}}\}^{-4/3}]^4$ [3]

Question 5

a) A two-digit number is seven times the sum of its digits. If 36 is subtracted from the number, the digits are reversed. Find the two-digit number. [4]

b) Ramesh invests ₹ 12,800 for three years at the rate of 10% p.a. CI. Find [3]
   i) The sum due to Ramesh at the end of the first year.
   ii) The interest he earns for the second year.
   iii) The total amount due to him at the end of the third year.

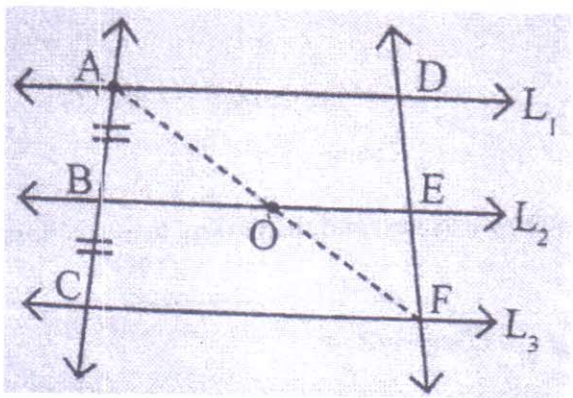
c) In the figure given below, C and G are midpoints of side BD and side AD respectively. E and H are midpoints of side GD and GC respectively. Side AB =32cm and side BD =44cm.
Find the measures of : (i)side CG (ii) side EH. State reasons for your answer. [3]



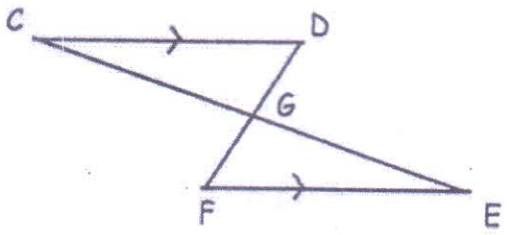
Question 6

a) Rationalize: $\frac{\sqrt{(6)}+\sqrt{3}}{9+2\sqrt{18}}$ [4]

b) In the figure given below, L_1 , L_2 and L_3 are parallel to each other. B is the midpoint of AC. Find AF if AO = $15x - 46$ *and* $OF = 3x + 50$ [3]



c)In the figure given below the lines CE and DF intersect at G. Lines CD and FE are parallel and CD = FE. Prove that Δ CDG and Δ EFG are congruent. [3]



Question 7

a) Without actual multiplication find the product 812 × 788 [4]

[4]

b) Given $4725 = 3^x \times 5^y \times 7^z$, find i) the numerical value of x, y and z.
ii) The value of $2^{-x} \times 3^y \times 7^z$ [3]

c) Find the distance between the points (5, -1) and (3,7). [3]