

GREENLAWNS HIGH SCHOOL
TERMINAL EXAMINATION YEAR 2019

SUBJECT : MATHEMATICS
TIME : 2 ½ HOURS

CLASS :IX
MARKS: 80

Attempt all questions from Section A and any four out of five from Section B.
All working including rough work must be clearly shown and must be done on the same sheet as the rest of the answer.

SECTION A (40 MARKS)

Attempt all questions from this section.

I

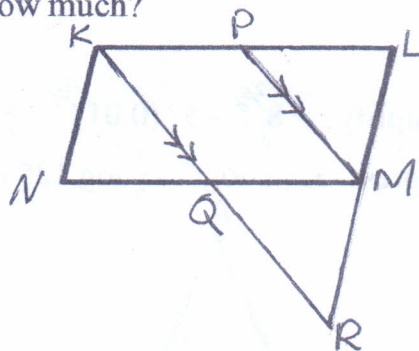
1. Expand $(\frac{2x}{3} - \frac{4}{5x} + 5)^2$ (3)
2. Solve for x : $\log(x + 4) + \log(x - 4) = \log 9$ (3)
3. Construct parallelogram ABCD, given AC = 6.4 cm, BD = 7.2 cm and BC = 4cm. Measure AB. (4)

II

1. Simplify : $\frac{5^{n+2} - 5^{n+1}}{6(5^n) - 5^n}$ (3)
 2. Factorise the following expression completely $a^8 - a^2b^6$ (3)
 3. Determine x and y if (4)
- $$\frac{\sqrt{5} - 1}{\sqrt{5} + 1} - \frac{\sqrt{5} + 1}{\sqrt{5} - 1} = x + y\sqrt{5}$$

III

1. Solve the following equations simultaneously. (3)
- $$\frac{7}{x} + \frac{8}{y} = 2 \quad ; \quad \frac{2}{x} + \frac{12}{y} = 20$$
2. Ram lent Rs. 2000 at compound interest 10% payable yearly while Lakhan lent Rs.2000 at compound interest payable half yearly. At the end of one year who earned more interest and by how much? (3)
 3. In parallelogram KLMN, P is the mid point of KL and KR is drawn parallel to PM which meets LM produced at R and cuts NM at Q. Prove that (4)



IV

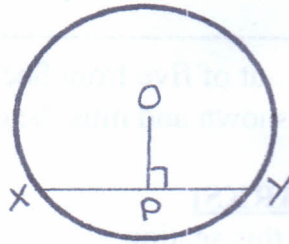
1. If $x - \frac{1}{x} = \sqrt{3}$, find the values of (3)
 - a. $x^2 + \frac{1}{x^2}$
 - b. $x + \frac{1}{x}$
 - c. $x^3 + \frac{1}{x^3}$
2. Plot $\sqrt{5}$ on the number line. (3)
3. Find the co-ordinates of the circumcentre of ΔPQR whose vertices are P(3, 0), Q (- 1, - 6) and R(4, - 1) . Also find its circumradius. (4)

SECTION B

Attempt any four questions out of five.

V

1.



In circle with centre O, $OP \perp XY$. (3)
Prove that OP bisects XY.

2. Simplify the following using laws of indices. (3)

$$[\{(3)^{\frac{1}{2}} \cdot (9)^{\frac{3}{4}} \cdot (27)^{\frac{5}{6}} \cdot (81)^{\frac{7}{8}} \cdot (243)^{\frac{9}{10}}\}^3]^{\frac{2}{27}}$$

3. Construct a hexagon of side 4.5 cm and then inscribe a circle in it. Measure (4)
its radius.

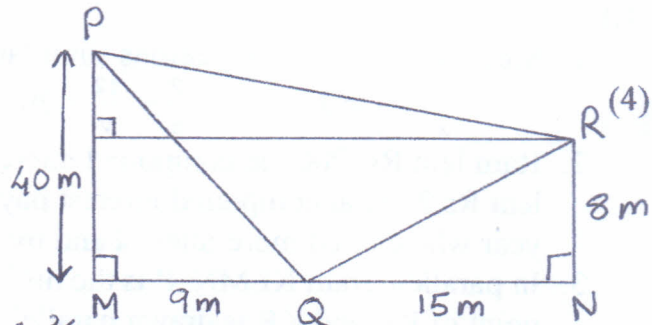
VI

1. Solve the following simultaneous equations using the cross multiplication (3)
method.

$$8y - 3x + 7 = 0 \quad ; \quad 2x - y - 4 = 0$$

2. A sum of money is invested at compound interest payable annually. The (3)
interest in two successive years is Rs.500 and Rs.550. Find the rate of
interest and amount invested.

3. In the given figure calculate the (4)
perimeter of ΔPQR .

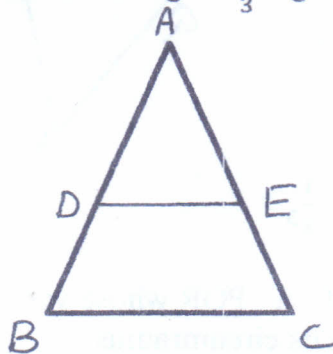


VII

1. Simplify : $8^{\frac{2}{3}} - 5^{\circ} (0.01)^{-\frac{1}{2}} + (\frac{1}{32})^{\frac{2}{5}}$ (3)

2. Express $3 + 2 \log 7 - \frac{1}{3} \log 125$ as a single logarithm. (3)

3. (4)



In triangle ABC, D is mid point (4)
of AB and E is mid point of AC.

If $\angle ADE = (3x - 10)^{\circ}$ and
 $\angle ABC = (2x + 15)^{\circ}$, find the value
of x and thus the measures of $\angle ADE$
and $\angle ABC$. If $DE = 3.4$ cm, find
the value of BC. Give reasons for your
answers.

VIII

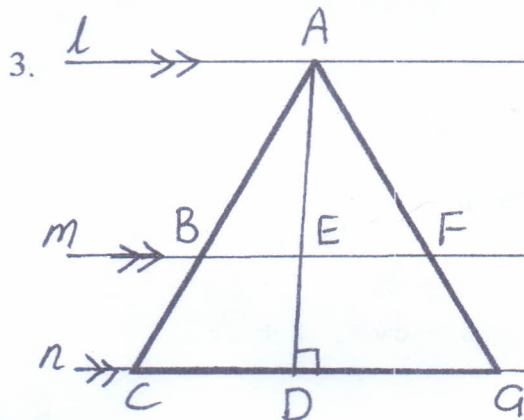
1. Factorise $2(3m - 2n)^2 - 21m + 14n + 6$ (4)
2. Solve the following simultaneous equations graphically
 $5x - 5y + 5 = 0$; $5x - 4y = 0$ (4)
3. What point/s on the y axis are at a distance of 10 units from the point $A(-8, 4)$ (2)

- IX Using identities find the value of (3)

$$\frac{73.8 \times 73.8 \times 73.8 + 26.2 \times 26.2 \times 26.2}{73.8 \times 73.8 - 73.8 \times 26.2 + 26.2 \times 26.2}$$

2. Rationalise the denominator (3)

$$\frac{3}{1 + \sqrt{3} - \sqrt{7}}$$



- Given lines l, m and n are parallel to other and F is midpoint of AG and D is midpoint of CG. Find (4)
- (a) Measure of BF
 - (b) Measure of AD
