

GREENLAWNS HIGH SCHOOL  
TERMINAL EXAMINATION 2017-18

SUB : MATHEMATICS  
TIME : 2 1/2 HOURS

CLASS : IX  
MARKS : 80

Attempt all questions from Section A and any four out of five questions 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)

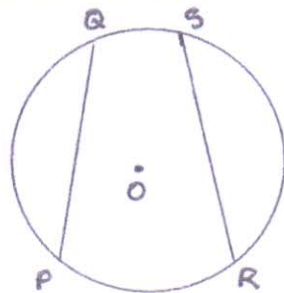
Attempt all questions from this section.

Q.1. a) Expand  $(8x + 5y + 3)(8x + 5y - 4)$  (3)

b) Find 'x' if  $\sqrt{5^0 + \frac{1}{4}} = (1.25)^{2x - 3}$  (3)

c) In the circle drawn below O is the centre of the circle, chord PQ = chord RS. (4)

Prove that their distances from the centre is also equal.

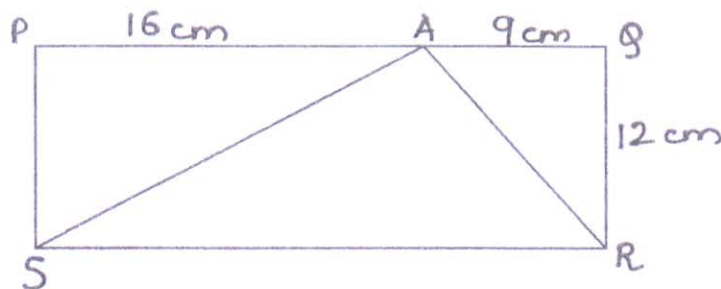


2 a) Find the value of x if  $\log_4(x^2 - 6x) = 2$  (3)

b) Solve the following (3)

$$\frac{x}{7} = \frac{2}{25 - 6x}$$

c) In the figure drawn below PQRS is a rectangle. PA = 16cm, AQ = 9cm, QR = 12 cm Find the lengths of AS and AR. Hence prove, that  $\angle SAR = 90^\circ$  (4)



3a) Solve the following simultaneous equations (3)

$$\frac{7}{a} + \frac{6}{b} = 71 ; \frac{5}{a} - \frac{8}{b} = -23$$

b) Factorise  $125x^6 + 1$  (3)

c) B is a point whose ordinate is thrice its abscissa. If A(6,8) and the distance between A and B is  $2\sqrt{5}$ , find the co-ordinates of B. (4)

Q.4

a) Calculate the compound interest on Rs. 7000 in 2 years if the rates for successive years are 4% and 5% p.a. (3)

b) Rationalise the denominator  $\frac{1}{\sqrt{2} + \sqrt{3} - \sqrt{5}}$  (3)

c) In  $\Delta PQR$ , D is the midpoint of PQ and E is the midpoint of PR, find (4)

(i) 'y' if  $DE = 3y + 2$  and  $QR = 4y + 9$

ii)  $\angle PRQ$  if  $\angle DER = 110^\circ$

**SECTION B (Any 4 out of 5)**

Q.5 a) Solve the following equation and give your answer correct to 3 significant figures. [3]

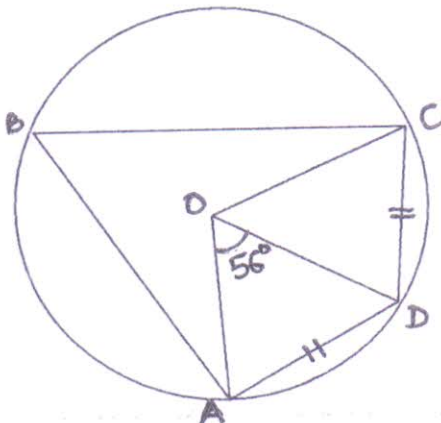
$$x + \frac{1}{5x} = 2$$

b) Simplify  $\log [50 \log (25 \log 10000)]^3$  [3]

c) A certain sum amounts to Rs.21,600 in 2 years and Rs 31,104 in 4 years at the same rate compounded annually. Find the rate and sum. [4]

Q.6 a) The area of an isosceles right angled triangle is  $128\text{cm}^2$ . Calculate the length of the hypotenuse to the nearest whole number. [3]

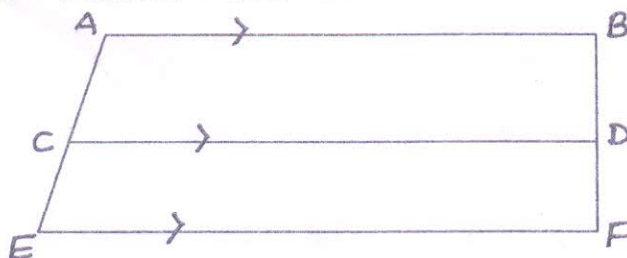
b) In the figure drawn below O is the centre of the circle. Chord AD = chord CD,  $\angle AOD = 56^\circ$  find (i)  $\angle DOC$  ii)  $\angle ABC$  iii)  $\angle OAD$  [3]



- c) Find the co-ordinates of the circumcentre of  $\Delta XYZ$  if  $X(6, -5)$ ,  $Y(6,7)$  and  $Z(8,7)$  (4)

- 7 a) In the figure drawn below  $AB \parallel CD \parallel EF$  &  $AC = CE$ . Find 'x' if (3)

$BD = 3x + 3$  and  $BF = 10x + 5$



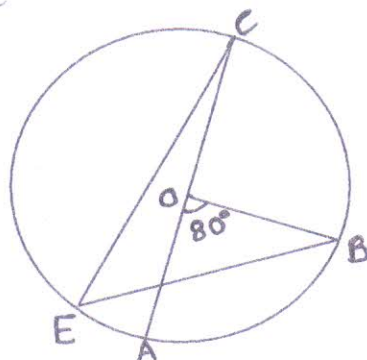
- b) If  $a^2 + \frac{1}{a^2} = 7$ ; find the value of  $a^3 + \frac{1}{a^3}$  (3)

- c) Solve the following simultaneous equations graphically. (4)

$x + y = 3$ ;  $3x - 2y = 4$

- 8 a) Factorise  $25x^2 + 30xy + 5y^2$  (3)

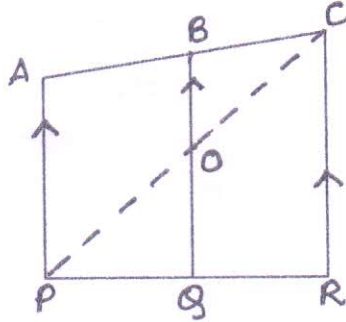
- b) In the figure drawn below O is the centre of the circle.  $\angle AOB = 80^\circ$  find  $\angle BEC$  &  $\angle ABC$  (3)



- c) Find x and y if  $\frac{7 + 3\sqrt{5}}{7 - 3\sqrt{5}} = x - y\sqrt{5}$  (4)

- Q.9. a) Simplify  $\frac{16 \times 2^{n+1} - 4 \times 2^n}{16 \times 2^{n+2} - 2 \times 2^{n+2}}$  (3)

b) In the figure drawn below  $AP \parallel BQ \parallel CR$  &  $AB = BC$  prove  $BQ = \frac{1}{2}(AP + CR)$  [3]



c) A person on a tour has Rs 360 for his expenses. If he extends his tour for 4 days he has to cut down his daily expenses by Rs 3. Find the original duration of his tour [4]