SUMMATIVE ASSESSMENT – 1 (2015-16)

SUBJECT – MATHEMATICES

Class – IX

Time allowed: 3 hours (Maximum Marks: 90)

General Instructions:

A. All questions are compulsory.

B. The question paper comprises of 31 questions divided in to four sections A, B, C. You are to attempt all the four sections.

C. Questions 1 to 4 in section A one mark questions.

D. Questions 5 to 10 in section B are two marks questions.

E. Questions 11 to 20 in section C are three marks questions.

F. Questions 21 to 31 in section D are four marks questions.

G. Use of calculators is not permitted.

SECTION A

Q1. Write the coordinates of the origin.

Q2. The number $\frac{665}{625}$ $\angle B > \angle D$ will terminate after how many decimals places?

Q3. Write any two postulates of Euclid.

Q4. In ΔABC, AB =BC AND $\angle B = 70^0$, find $\angle A$

SECTION B

Q5. Rationalize $\frac{1}{\sqrt{7-\sqrt{3}}}$

Q6. The angles of a triangle are in the ratio 1:2:3. Find the smallest angle.

Q7. Expand $(2x+3y)^3$ using suitable identity

Q8. Draw the pints in the Cartesian plane A (3, -2) B(-3, 2), C(3, 2), D(-3, -2)

Or

Visualize 3.765 on the number line, using successive magnification.

Q9. Find the area of equilateral triangle whose side is 6 cm.

Q10. If a point c lies between two points A and B such that AC= BC then prove that

$$AC = \frac{1}{2} AB$$

SECTION C

Q11. Locate $\sqrt{3}$ on the number line and give its proof also.

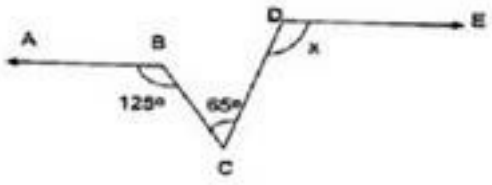
Q12. Express 0.073 in the from of $\frac{p}{q}$ where p and q are integers and q #0

Or

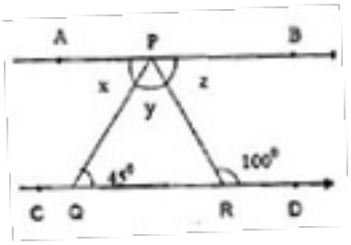
Find the remainder when $x^3 - ax^2 + 6x - a$ is divided by x – a.

Q13. Find the value of x if

$AB || DE$, $\angle ABC = 125^\circ$ and $\angle BCD = 65^\circ$



Q14. In the figure, $AB \parallel CD$, $\angle PQR = 45^\circ$ $\angle PRD = 100^\circ$ Find the values of the $\angle x$, $\angle y$ and $\angle z$.



Q15. Using remainder theorem, find the remainder when $x^3 - 3x^2 + 4x + 50$ is divided by x – 2.

Or

Factorize: $27y^3 + 125z^3$ using suitable identity.

Q16. Prove that the sum of the measures of the three angels of a triangle is 180°

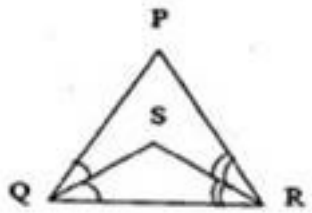
Q17 (i) write three rational number between 3 and 4.

(ii) Solve $2^{2/3} \times 2^{1/3}$ using laws of expenents.

Q18. In which quadrant or on which axis do each of points lies?

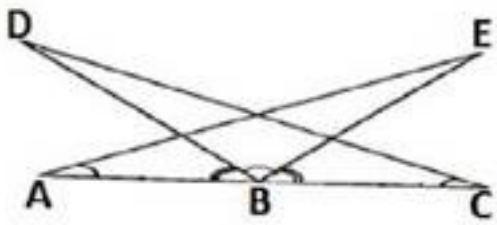
(-3, 5), (7, 3), (4 ,-5), (0 ,8), (5 ,0) , (-7 ,-6)

Q19. In the figure, PQ > PR and QS, RS are bisectors of $\angle Q$ and $\angle R$ respectively. Show that SQ > SR.



ΔABC is an isosceles triangle in which AB = AC, Side BA is produces to Such that AD = AB. Show that $\angle BCD$.

Q20. In the given Fig, AB, and $\angle A = \angle C$ and $\angle ABD = \angle CBE$. Prove that CD = AE.



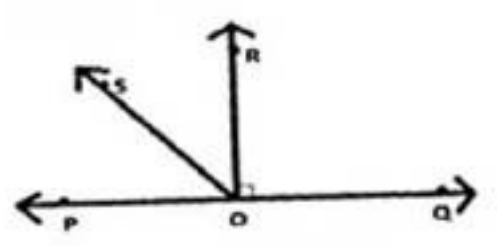
SECTION D

Q21. If $\frac{\sqrt{2+\sqrt{3}}}{3\sqrt{2-2\sqrt{3}}} = a + b\sqrt{6}$ Find the value of a and b.

Q22. A park in a shape of quadrilateral ABCD has $\angle c = 90^\circ$. AB= 9m, BC = 12m, CD=5m abed AD = 8m.

How much area dowse it occupy? If 10 students of the locality planned to clean the park dividing area equally, than how much area, each student will clean and which value is being depicted by the students?

Q23. In the given figure, POQ is line. Ray OR is perpendicular to line PQ.OS is another ray lying between rays OP and OR prove that $\angle ROS = \frac{1}{2}(\angle QOS - \angle POS)$



Q24. Find the value of k, if x-1 is a factor of $p(x) = kx^2 - \sqrt{2}x + 1$

Q25. ABC is triangle in which altitudes BE and CF to sides AC and Ab are equal. Show that

(i) $\Delta ABE \cong \Delta ACF$

(ii) AB=AC

Q26. Factorize: $8a^3 - b^3 - 12a^2b + 6ab^2$

Q27. (i) Evaluate $(2x - y + z)^2$

(ii) factorize : $9x^2 + 6xy + y^2$

Q28. What are the possible dimensions of the cuboid whose volume is $12ky^2 + 8ky - 20k$

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Q29. In a ΔABC, the sides AB and AC are produced to P and Q respectively. The bisectors of $\angle PBC$ and $\angle QBC$ intersect at a point O.

Prove that $\angle BOC = 90^\circ - \frac{1}{2}\angle A$

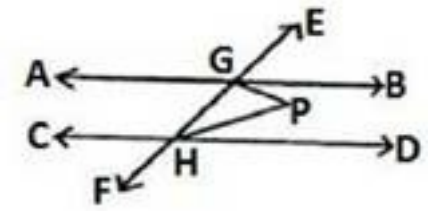
OR

A field is in the shape of a trapezium whose parallel sides are 25 m and 10m. The non-parallel sides are 14 m and 13m.

Find the area of the field.

Q30. Factorize: $x^3 + 13x^2 + 32x + 20$.

Q31. In the given figure, AB and CD are parallel lines. The bisectors of interior angles on the same side of the transversal EF intersect at P. Show that $\angle GPH = 90^\circ$.



Or

AB and CD are respectively smallest and longest side of quadrilateral ABCD. Show that

$\angle A > \angle C \; \angle B > \angle D$