

12.09.19
STD: IX (AN)

EVERWIN PUBLIC SCHOOL
HALF YEARLY ASSESSMENT
MATHEMATICS

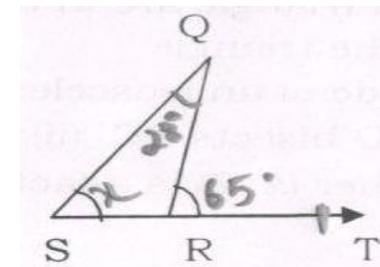
Marks :80
Time:3hrs

I. Answer the following:

20x1=20

- Every natural number is a whole number.
a) False b) True c) Only d) None of these
- Every point on a number line represents ____.
a. a unique real number b. a natural number
c. a rational number d. an irrational number
- The square root of 64 divided by the cube root of 64, is ____.
a. 64 b. 2 c. $\frac{1}{2}$ d. $64^{2/3}$
- If $(2^3)^2 = 4^x$ then $3^x =$ ____.
a. 3 b. 6 c. 9 d. 27
- $\frac{1}{\sqrt{9} - \sqrt{8}}$ is equal to ____.
a. $3+2\sqrt{2}$ b. $\frac{1}{3+2\sqrt{2}}$ c. $3-2\sqrt{2}$ d. $\frac{3}{2} - \sqrt{2}$
- If $a^2+b^2+c^2-ab-bc-ca=0$, then ____.
a. $a+b=c$ b. $b+c=a$ c. $c+a=b$ d. $a=b=c$
- The equation $x-2=0$ on number line is represented by ____.
a. a line b. a point c. infinitely many lines d. two lines.
- If a ____ intersects two parallel lines, then each pair of alternate interior angles is equal.
a) Line segment b) Transversal
c) Parallel d) Ray
- The sum of any ____ sides of a triangle is greater than the third side.
a) opposite b) two c) interior d) exterior
- Find the third side of triangle two sides of which are 8cm and 11cm and the perimeter is 32cm.
a) 13cm b) 12cm c) 32cm d) 10cm
- Points $(-4,0)$ and $(7,0)$ lie ____.
a. on x-axis b. y-axis c. in first quadrant
d. in second quadrant
- Find the factor of the equation $y^2 - 5y + 6$
a) $(y - 2)(y - 3)$ b) $(y - 2)(y + 3)$
c) $(y + 2)(y - 3)$ d) $(y + 2)(y + 3)$

- Find the value of $(125)^{\frac{-1}{3}}$
a) 5^{-1} b) $\frac{1}{5}$ c) both a and b d) None of these
- Two lines AB and CD intersect at O. If $\angle AOC + \angle COB + \angle BOD = 270^\circ$, then $\angle AOC =$ ____.
a. 70° b. 80° c. 90° d. 180°
- All the rational and irrational numbers make up the collection of _____.
a) Integers b) Natural numbers
c) Real numbers d) Whole numbers
- Find the remainder when $3x^2 + x - 1$ is divided by $x+1$ ____
a) 2 b) 1 c) 5 d) 3
- If one angle of a triangle is equal to the sum of the other two angles, then the triangle is ____
a. an isosceles triangle b. an obtuse triangle
c. an equilateral triangle d. a right triangle.
- Which of the following is not a criterion for congruence of triangles?
a. SAS b. SSA c. ASA d. SSS
- If every side of a triangle is doubled, then increase in the area of the triangle is ____.
a. $100\sqrt{2}\%$ b. 200% c. 300% d. 400%
- Find the value of x.



II. Answer the following:

6x2=12

- Find the rationalising factor of $\frac{1}{x+\sqrt{y}}$
- Find $p(0)$, $p(1)$, $p(2)$ for the following polynomials $p(x)=y^2-y+1$
- Find the measure of each angle of an equilateral triangle.
- Define SAS congruence rule.

25. If point C is a mid point of the segment AB. Prove that every line segment has one and only one mid point

26. Write the value of $(2+\sqrt{3})(2-\sqrt{3})$

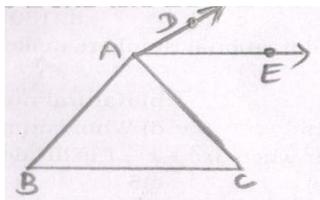
III. Answer the following:

8x3=24

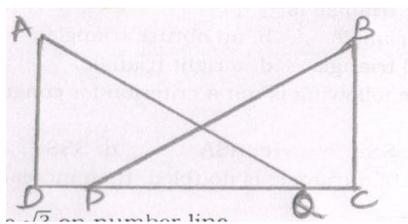
27. Simplify: $\sqrt[5]{243}$

28. Rationalise the denominator of $2\frac{\sqrt{7}}{\sqrt{11}}$

29. AE bisects $\angle CAD$ and $\angle B = \angle C$. Prove that $AE \parallel BC$.



30. $AD+CD$ and $CB \perp CD$. If $AQ=BP$ and $DP= CQ$. Prove that $\angle DAQ = \angle CBP$.



31. Locate $\sqrt{3}$ on number line

32. The angles of a triangle are in the ratio 2:3:5. Find the measure of each angle of the triangle

33. AD is an altitude of an isosceles triangle ABC in which $AB=AC$.

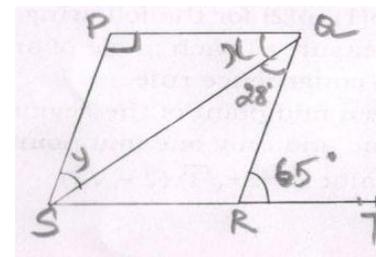
Show that (i) AD bisects BC (ii) AD bisects $\angle A$

34. Examine whether $(x+2)$ is a factor of x^3+3x^2+5x+6

IV. Solve:

6x4=24

35. In the adjoining figure, if $PQ \perp PS$. $PQ \parallel SR$ $\angle SQR = 28^\circ$ and $\angle QRT = 65^\circ$ then find the values of x and y.



36. A and B, two students of class IX of a school, together contributed ₹100 towards the Prime Minister's relief fund to help the earthquake victims

a) Write a linear equation which the above data satisfies

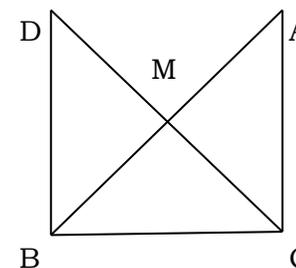
b) Draw the graph for the above data

37. In right triangle ABC, right angled at C, M is the mid point of hypotenuse AB. C is joined to M and produced to a point D such that $DM=CM$. Point D is joined to point B (See figure) Show that

i) $\triangle AMC \cong \triangle BMD$

ii) $\angle DBC$ is a right angle

iii) $\triangle DBC \cong \triangle ACB$



38. A triangle and a parallelogram have the same base and the same area. If the sides of the triangle are 26cm, 28cm, and 30cm and the parallelogram stands on the base 28cm, find the height of the parallelogram.

39. Draw the graph of linear equation in Cartesian plane: $2x+4=3x+1$.

40. Factorize $x^3+13x^2+32x+20$, if it is given that $x+2$ is its factor.