SAHIWAL BOARD

GRADE 9

MATHEMATICS

2019 GROUP 1

MCQ'S

A. 2x + y

B. x - 2y

C. 2x - y

D. x + 2y

Answer:

C. 2x - y

ii) Which of the following sets has the closure property. (Mark 1)

A. {1,√2, 1/2}

B. {0,1}

C. {0,-1}

D. {0}

Answer:

A. {1,√2, 1/2}

iii) logba ×logcb can be written as (Mark 1)

A. logbc

B. logab

C. logca

D. logac

Answer:

C. logca

iv) The degree of the polynomial x2y2 = 3xy + y3 is (Mark 1)

A. 1

B. 2

C. 3

D. 4

Answer:

D. 4

v) Factors of a4 - 4b4 are (Mark 1)

A. (a + b)(a - b)(a2 + 4b2)

B. (a2 - 2b2)(a2 + 2b2)

C. (a + b)(a - b)(a2 - 4b2)

D. (a - b)(a2 + 2b2)

Answer:

B. (a2 - 2b2)(a2 + 2b2)

Solution:A

Solution:

A

vii) If x is no larger than 10, then (Mark 1)

A. $x \leq 10$

B. $x < 10$

C. $x > 10$

D. $x \geq 8$

Answer:

A. $x \leq 10$

viii) The point P(2,0) lies on (Mark 1)

A. x-axis

B. y-axis

C. z-axis

D. x and y-axis

Answer:

A. x-axis

ix) Midpoint of the points (2, -2) and (-2, 2) (Mark 1)

A. (2,2)

B. (-2,-2)

C. (0,0)

D. (1,1)

Answer:

C. (0,0)

x) The symbol $\cong$ is used to (Mark 1)

A. Proportion

B. Ratio

C. Similar to

D. Congurent

Answer:

D. Congurent

xi) Diagonal of a parallelogram divides the parallelogram into two _____ triangles. (Mark 1)

A. parallel

B. non parallel

C. congruent

D. concurrent

Answer:

C. congruent

xii) The bisector of the angles of a triangle are (Mark 1)

A. equal

B. concurrent

C. congruent

D. parallel

Answer:

B. concurrent

xiii) Which one of the following has no unit? (Mark 1)

B. length

B. mass

C. ratio

D. width

Answer:

C. ratio

xiv) Altitude of a triangle means perpendicular from _____ to the opposite side.
(Mark 1)

A. vertex

B. side

C. the midpoint

D. center

Answer:

A. vertex

xv) The _____ altitudes of an isosceles triangle are congruent. (Mark 1)

A. 2

B. 3

C. 4

D. 5

Answer:

A. 2

Q.2 i) Define row matrix with an example. (Marks 2)

Q.2 ii) Is the given matrix singular or non singular. (Marks 2)

$$D = \begin{bmatrix} 5 & -10 \\ -2 & 4 \end{bmatrix}$$

Q.2 iv) Define a complex number. (Marks 2)

Q.2 vi) Express in ordinary notation. 9.018×10^{-6} (Marks 2)

Q.2 ix) Factorize if $27x^3 + 64y^3$. (Marks 2)

Q.3 i) Define least common multiple (L.C.M) (Marks 2)

Q.3 ii) Solve the equation $\sqrt{(x-3)} - 7 = 0$ (Marks 2)

Q.3 iv) Find the values of m and c by expressing the line 2x - y = 7 in the form of y = mx + c (Marks 2)

Q.3 v) Verify whether the point (2,5) lies on the line 2x - y +1 = 0 or not. (Marks 2)

Q.3 vi) Find the distance between the pair of points A(-4, √2), B(-4, -3). (Marks 2)

Q.3 vii) Find the mid-point of the line segment joining A(2, -6) and B(3, -6) (Marks 2)

Q.3 viii) Define ray. (Marks 2)

Q.3 ix) Define parallelogram. (Marks 2)

Q.4 i) Define right bisector of a line segment (Marks 2)

Q.4 ii) Explain that the given lengths can be the sides of a triangle or not. 4cm, 3cm, 5cm. (Marks 2)

Q.4 iii) Define proportion. (Marks 2)

Q.4 iv) State converse of Pythagoras theorem. (Marks 2)

Q.4 v) Verify that the triangle having following sides is right angled a=1.5cm, b=2cm, c=2.5cm (Marks 2)

Q.4 vi) Find the area of the given figure (Marks 2)

Q.4 vii) Define triangle region. (Marks 2)

Q.4 ix) Define circumcenter of triangle. (Marks 2)

Q.5 a) Solve by Cramer's rule. 2x - 2y = 4 ; 3x + 2y = 6 (Marks 4)

Q.6 a) Prove that $\log_a mn = \log_a m + \log_a n$ (Marks 4)

Q.6 b) If $a^2 + b^2 + c^2 = 43$ and $ab + bc + ca = 3$, then find the value of

Q.7 a) Factorize $9x^4 + 36y^4$ (Marks 4)

Q.7 b) Use the division method to find the square root $x^4 - 10x^3 + 37x^2 - 60x + 36$ (Marks 4)

Q.8 b) Construct ΔABC and draw bisectors of its angles. (Marks 4)

Q.9 a) Prove that any point equidistant from the endpoints of a line segment is on the right bisector of it. (Marks 8)

Q.9 b) Prove that parallelograms on equal bases and having the same (or equal) altitude are equal in area. (Marks 8)

SAHIWAL BOARD

GRADE 9

MATHEMATICS

2019 GROUP 2

MCQ'S

i) $\begin{bmatrix} \sqrt{2} & 0 \\ 0 & \sqrt{2} \end{bmatrix}$ **is called _____ matrix.** **(Mark 1)**

A. Zero
B. Unit
C. Scalar
D. Singular
Answer:
C. Scalar

ii) The symbol "for all" is: (Mark 1)

A. ∀
B. A
C. ∧
D. ∨
Answer:
A. ∀

iii) The logarithm of unity to any base is (Mark 1)

A. 0
B. 1
C. 10
D. e
Answer:
A. 0
AnswerB

Answer
B

v) Factors of 3x2 - x -2 are (Mark 1)

A. (x+1),(3x-2)
B. (x+1),(3x-2)
C. (x-1),(3x-2)
D. (x-1),(3x+2)
Answer:
D. (x-1),(3x+2)

vi) LCM of a2 + b2 and a4 - b4 is (Mark 1)

A. a2 + b2
B. a2 - b2
C. a4 - b4
D. a - b
Answer:
C. a4 - b4

vii) The solution set of |x - 4| = -4 is (Mark 1)

A. 4
B. {}
C. -16
D. -8
Answer:
B. {}

viii) Point (-3,-3) lies in quadrant (Mark 1)

A. I
B. II
C. III
D. IV
Answer:
C. III

ix) A line segment has end points (Mark 1)

A. 1
B. 2
C. 3
D. 4
Answer:
B. 2

x)In a triangle there can be right angle/angles (Mark 1)

A. 1
B. 2
C. 3
D. 4
Answer:
A. 1

xi) In a parallelogram, opposite angles are (Mark 1)

A. Concurrent
B. Congruent
C. Non congruent
D. Parallel
Answer:
B. Congruent

xii) The right bisector of the sides of a triangle are (Mark 1)

A. collinear
B. equal
C. congruent
D. concurrent
Answer:
D. concurrent

xiii) A line segment has mid point/points (Mark 1)

A. 1
B. 2
C. 3
D. 4
Answer:
A. 1

xiv) If the length and width of a rectangle are "a" and "b" then its area will be
(Mark 1)

A. a + b
B. a - b
C. a × b
D. a ÷ b
Answer:
C. a × b

xv) A point equidistant from the end points of a line segment is on its
(Mark 1)

A. Bisector
B. Right bisector
C. Perpendicular
D. Median
Answer:
A. Bisector

Q.2 i) If $A = \begin{bmatrix} 3 & 0 \\ -1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 6 \\ 5 \end{bmatrix}$ then find AB **(Marks 2)**

Q.2 ii) Define square matrix with an example. (Marks 2)

Q.2 iii) Represent the number $2\frac{3}{4}$ on the number line. (Marks 2)

Q.2 iv) Simplify $5^{2^3} \div (5^2)^3$ (Marks 2)

Q.2 v) Express 0.0000000035 in scientific notation. (Mark 2)

Q.2 vi) Express 2logx - 3logy in the form of a single logarithm. (Marks 2)

Q.2 vii) If log2 = 0.3010, log3 = 0.4771, log5 = 0.6990 then find the value of log30. (Marks 2)

Q.2 ix) Factorize $125x^3 - 1331y^3$ (Marks 2)

Q.3 i) Find H.C.F (Marks 2)

Q.3 ii) Solve the equation $\sqrt{(x-3)} - 7 = 0$ (Marks 2)

Q.3 iii) Define radical equation and give an example. (Marks 2)

Q.3 iv) Define abscissa and ordinate (Marks 2)

Q.3 v) Find the value of m and c by expressing line 2x - y = 7 in the form of y = mx + c. (Marks 2)

Q.3 vi) Find the midpoint between pairs of the points A(2, -6), B(3, -6) (Marks 2)

Q.3 vii)Define collinear points. (Marks 2)

Q.3 viii) State S.S.S ≅ S.S.S postulate. (Marks 2)

Q.3 ix) In the given parallelogram ABCD, find the value of x and m. (Marks 2)

Q.4 i) Define bisector of the angle (Marks 2)

Q.4 ii) Define quadrilateral. (Marks 2)

Q.4 iii) Define congruent triangles. (Marks 2)

Q.4 iv) Verify that a = 9cm, b = 12cm, c = 15cm are the sides of triangle or not. (Marks 2)

Q.4 v) Define the Pythagoras theorem. (Marks 2)

Q.4 vi) Define altitude of parallelogram. (Marks 2)

Q.4 vii) Find area if the given figure. (Marks 2)

Q.4 viii) Define incenter of triangle. (Marks 2)

Q.4 ix) Construct ΔXYZ, mYZ = 7.6 cm, mXY = 6.1 cm and m∠X = 90^o. (Marks 2)

Q.5 a) Solve by Cramer's rule. $4x + 2y = 9$; $-3x - y = -5$ (Marks 4)

Q.6 b)Use $x + y + z = 12$ and $x^2 + y^2 + z^2 = 64$, then find the value of $xy + yz + zx$. (Marks 4)

Q.7 a) Factorize $x^2 - a^2 + 2a - 1$ (Marks 4)

Q.7 b) Use the division method to find the square root of the expression $4x^2 + 12xy + 9y^2 + 16x + 24y + 16$ (Marks 4)

Q.8 b) Construct triangle PQR and draw altitude of is sides. mRP = 3.6m, m∠Q = 30^o, m∠P = 105^o (Marks 4)

Q.9 a) Any point on the right bisector of a line segment is equidistant from its endpoints. Prove it. (Marks 8)

Q.9 b) Prove that triangles on equal base and of equal altitude are equal in area. (Marks 8)