SAHIWAL BOARD

GRADE 9

MATHEMATICS

2018 GROUP 1

MCQ'S

i) An idea of matrices was given by (Mark 1)

A. Arthur Cayley

B. Briggs

C. Al-Khawarzmi

D. John Napier

Answer:

A. Arthur Cayley

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

A. 1

B. 10

C. e

D. 0

Answer:

D. 0

iv) The degree of polynomial 4x4+2x2y is (Mark 1)

A. 1

B. 2

C. 3

D. 4

Answer:

D. 4

v) Find m so that x2+4x+m is a complete square (Mark 1)

A. 8

B. -8

C. 4

D. 16

Answer:

C. 4

vi) H.C.F of a3+b3 and a2-ab+b2 is (Mark 1)

A. a+b

B. a2-ab+b2

C. (a-b)2

D. a2+b2

Answer:

B. a2-ab+b2

vii) x= 0 is a solution of the inequality (Mark 1)

A. $x > 0$

B. $3x+5 < 0$

C. $x+2 < 0$

D. $x-2 < 0$

Answer:

D. $x-2 < 0$

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

A. I

B. II

C. III

D. IV

Answer:

C. III

ix) Mid point of the points (2,2) and (0,0) is (Mark 1)

A. (1,1)

B. (1,0)

C. (0,1)

D. (-1,-1)

Answer:

A. (1,1)

x) If two angles of a triangle are congruent then the sides opposite to them are also (Mark 1)

A. Parallel

B. Congruent

C. Opposite

D. Non-Parallel

Answer:

B. Congruent

xi) Medians of a triangle are (Mark 1)

A. Concurrent

B. Equal

C. Congruent

D. Parallel

Answer:

A. Concurrent

xii) The_____of circle is on the right bisectors of each of its chords.

(Mark 1)

A. Centre

B. Radius

C. Diameter

D. Sector

Answer:

B. Radius

xiii) Congruent triangles are (Mark 1)

A. Similar

B. Parallel

C. Different

D. Concurrent

Answer:

A. Similar

xiv) Parallelograms on equal bases and having the same (or equal) altitude in area are (Mark 1)

A. Un equal

B. Equal

C. Congruent

D. Similar

Answer:

B. Equal

xv) A quadrilateral having each angle equal to 90o is called (Mark 1)

A. Parallelogram

B. Rectangle

C. Trapezium

D. Rhombus

Answer:

B. Rectangle

Section-A

Q.2 i) If C = [1 -1 2] then find (-2)C (Marks 2)

Q.2 ii) Define rectangular matrix. (Marks 2)

Q.2 iii) Simplify radical the expression $\sqrt[5]{\frac{3}{32}}$ **(Marks 2)**

Q.2 iv) Simplify -2/1+*i* and write in the form a + bi (Marks 2)

Q.2 v) Express the number 0.00643 into scientific notation (Marks 2)

Q.2 vi) **(Marks 2)**

Find the value of x if $\log_{64} 8 = \frac{x}{2}$ [redacted]

Q.2 vii) Reduce the following rational expression to the lowest form
(x+y)2-4xy/(x-y)2 **(Marks 2)**

Q.2 viii) Simplify $\frac{\sqrt{18}}{\sqrt{3}\sqrt{2}}$ **(Marks 2)**

Q.2 ix) Factorize: x^2 - 11x - 42 **(Marks 2)**

Q.3 i) Find L.C.M. of $39x^7y^3z$ and $91x^5y^6z^7$ **(Marks 2)**

Q.3 ii) **(Marks 2)**

Solve the equation $2\sqrt{t+4} = 5$ [redacted]

Q.3 iii) Define a linear inequality in one variable. **(Marks 2)**

Q.3 iv) Define origin. **(Marks 2)**

Q.3 v) **(Marks 2)**

Find the value of m and c after expressing $x - 2y = -2$ in the form of $y = mx + c$ [redacted]

Q.3 vi) Let P be the point on x-axis with x-coordinate ''a'' and Q be the point on y-axis with y-coordinate ''b'' , find the distance between P and Q if a = -2, b = -3 **(Marks 2)**

Q.3 vii) Define isosceles triangle. **(Marks 2)**

Q.3 viii) Find the value of unknowns ''m'' and ''x'' for the given congruent triangles. **(Marks 2)**

Q.3 ix) LMNP is a parallelogram , find the value of m and n **(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 lengths of the sides of triangle. 2 cm, 3 cm and 5 cm. (Marks 2)

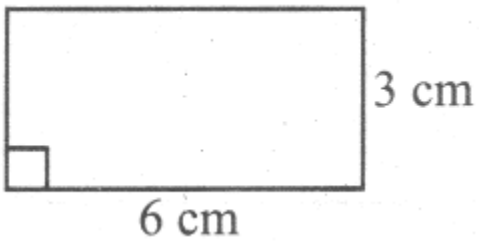
Q.4 iii) Define proportion. (Marks 2)

Q.4 vi) Verify that the triangle having the following measures of the sides is right-angled a = 5 cm, b = 12 cm and c = 13 cm. (Marks 2)

Q.4 v) State Pythagoras theorem. (Marks 2)

Q.4 vi) Define Rectangular region. (Marks 2)

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



Q.4 viii) Construct a Δ ABC in which m $\overline{AB}$ = 3.2 cm, m $\overline{BC}$ = 4.2 cm, m $\overline{CA}$ = 5.2 cm. (Marks 2)

Q.4 ix) Define incentre of the triangle? (Marks 2) **Q.5**

a) (Marks 4)

Solve the following linear equations by using crammer's rule. $4x + y = 9, -3x - y = -5$

Q.5 b) (Marks 4)

Simplify $\left(\frac{a^{2l}}{a^{l+m}}\right).\left(\frac{a^{2m}}{a^{m+n}}\right).\left(\frac{a^{2n}}{a^{n+l}}\right)$

Q.6 a) (Marks 4)

Use log table to find the value of $\frac{(8.97)^3.(3.95)^2}{\sqrt[3]{15.37}}$

Q.6 b) If P = 2+ $\sqrt{3}$ then find the value of $P^2 + \frac{1}{p^2}$ (Marks 4)

Q.7 a) Factorize by factor theorem $3x^3-x^2-12x+4$ (Marks 4)

Q.7 b) Find the square root using division method $9x^4-6x^3+7x2-2x+1$ (Marks 4)

Q.8 a) (Marks 4)

Find the solution set of the equation $\frac{5(x-3)}{6} - x = 1 - \frac{x}{9}$

Q.8 b) (Marks 4)

Construct triangle ABC in which $m\overline{BC} = 3.1cm, m\overline{AB} = 4.5cm, m\overline{CA} = 5.2cm$

Draw the bisectors of its angles and verify their concurrency

Q.9) (Marks 8)

Prove that any point on the right bisector of a line segment is equidistant from its end points

SAHIWAL BOARD

GRADE 9

MATHEMATICS

2018 GROUP 2

MCQ'S

i) If $\begin{vmatrix} 2 & 6 \\ 3 & x \end{vmatrix} = 0$ **then x is equal to_____.** **(Mark 1)**

A. 9
B. -6
C. 6
D. -9

ii) Imaginary part of $-i(3i+2)$ **is _____.** **(Mark 1)**

A. -2
B. 2
C. 3
D. -3

iii) The relation of $y = \log_z x$ **implies:** **(Mark 1)**

A. $x^y = z$
B. $z^y = x$
C. $x^z = y$
D. $y^z = x$

iv) $\left(3+\sqrt{2}\right)\left(3-\sqrt{2}\right)$ **is equal to _____.** **(Mark 1)**

A. 7
B. -7
C. -1
D. 1

v) The factors of $x^2 - 5x+6$ are: **(Mark 1)**

A. $x+1, x - 6$

B. $x - 2, x -3$

C. $x+6, x - 1$

D. $x+2, x+3$

vi) H.C.F of $x^2 - 5x+6$ and $x^2- x - 6$ is _____: **(Mark 1)**

A. $x - 3$

B. $x+2$

C. $x^2 - 4$

D. $x - 2$

vii) x=_____ is a solution of inequality $-2<x<3/2$: **(Mark 1)**

A. -5

B. 3

C. 0

D. 3/2

viii) If $y=2x+1$, $x=2$ then y is _____. **(Mark 1)**

A. 2

B. 3

C. 4

D. 5

ix) Distance between the points (0, 0) and (1, 1) is _____. **(Mark 1)**

A. 0

B. 1

C. 2

D. $\sqrt{2}$

x) In triangle there can be only _____ right angle/s: **(Mark 1)**

A. 2

B. 4

C. 1

D. 3

xi) Median of triangle are ____. **(Mark 1)**

A. Parallel

B. Congruent

C. Concurrent

D. Collinear

Section-A (MCQs)

xii) Bisection means to divide into _____ equal parts. **(Mark 1)**

A. 3

B. 4

C. 1

D. 2

xiii) Congruent triangles are _____. **(Mark 1)**

A. similar

B. different

C. unequal

D. equal

xiv) The diagonals of a parallelogram divide it into _____ triangles of same area. **(Mark 1)**

A. 2

B. 3

C. 4

D. 6

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

A. 1

B. 2

C. 3

D. 4

Section-B

Q.2 i) Define row matrix. **(Marks 2)**

Q.2 ii) If $A = \begin{vmatrix} 1 & 2 \\ 0 & 1 \end{vmatrix}$, then find $(A^t)^t$. **(Marks 2)**

Q.2 iii) Evaluate i^{50} **(Marks 2)**

Q.2 iv) Express $\frac{1}{1+2i}$ in standard form a+bi. **(Marks 2)**

Q.2 v) Write in the form of single logarithm: 2 log x - 3 log y (Marks 2)

Q.2 vi) Find the value of x if: $\log_3 x = 5$ **(Marks 2)**

Q.2 vii) Simplify:- $\frac{\sqrt{21}.\sqrt{9}}{\sqrt{63}}$ **(Marks 2)**

Q.2 viii) What is meant by polynomial? (Marks 2)

Q.2 ix) Factorize 144a2+24a+1. (Marks 2)

Q.3 i) Define H.C.F **(Marks 2)**

Q.3 ii) Solve for x: |3x+14| - 2 = 5x **(Marks 2)**

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

Q.3 iv) Verify as whether the point (5,3) lies on the line: 2x - y+1=0 **(Marks 2)**

Q.3 v) Define Collinear Points. **(Marks 2)**

Q.3 vi) Find the distance between the following pair of points . A(-8,1), B(6,1) **(Marks 2)**

Q.3 vii) Define right angled triangle. **(Marks 2)**

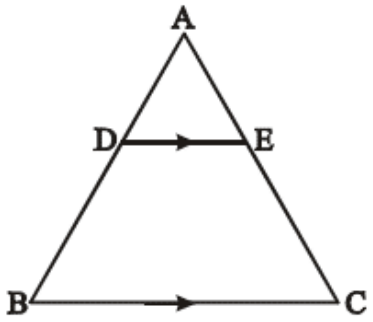
Q.3 viii) Define S.A.S postulate. **(Marks 2)**

Q.3 ix) Define Parallelogram. **(Marks 2)**

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

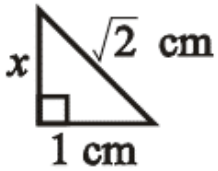
Q.4 ii) 3cm, 4cm and 7cm are not lengths of a triangle.Give the reason. (Marks 2)

Q.4 iii) In $\triangle ABC$ $\overline{DE} \parallel \overline{BC}$ if $m\overline{AD} = 2.4$ cm, $m\overline{AE} = 3.2$ cm, $m\overline{EC} = 4.8$cm then find $m\overline{AB} = ?$ (Marks 2)



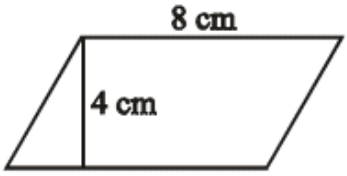
Q.4 iv) Verify △ having measures of lengths that are sides of right angled triangle. a=5cm, b=12cm & c=13cm (Marks 2)

Q.4 v) Find the value of x. (Marks 2)



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

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



Q.4 viii) Define incentre of a triangle. (Marks 2)

Q.4 ix) Construct $\triangle ABC$ in which $m\overline{AB} = 3.2$cm, $m\overline{BC} = 4.2$cm, $m\overline{CA} = 5.2$cm. (Marks 2)

Q.5 a) Use cramer's rule to solve the equations. (Marks 4)

2x - 2y = 4, -5x - 2y = -10

Q.5 b) Simplify: $\dfrac{2^{1/3}\times(27)^{1/3}\times(60)^{1/2}}{(180)^{1/2}\times(4)^{-1/3}\times(9)^{1/4}}$ **(Marks 4)**

Q.6 a) Use log table to find the value of $\sqrt[5]{2.709}\times\sqrt[7]{1.239}$ **(Marks 4)**

Q.6 b) If m + n + p = 10 and mn + np + mp = 27, then find the value of $m^2 + n^2 + p^2$. (Marks 4)

Q.7 a) Factorize the following cubic polynomials by factor theorem $x^3 - 2x^2 - x + 2$ (Marks 4)

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

Q.8 a) Solve the equation. $\dfrac{2}{x^2-1}-\dfrac{1}{x+1}=\dfrac{1}{x+1},\ x\neq\pm1$ **(Marks 4)**

Q.8 b) Construct the triangle ABC and draw the perpendicular bisectors of its sides. $m\overline{AB}=2.4cm$, $m\overline{AC}=3.2cm$ **and** $m\angle A=120^{\circ}$.

(Marks 4)

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

Or

Prove that the triangles on equal basses and of the same (i.e., equal) altitudes are equal in Area.