

FAISALABAD BOARD

GRADE 9

Mathematics

2018 GROUP 1

Lesson 1 of 39

Section-A (MCQs)

Ali Azeem

1. x _____ is a solution of inequality $-2 < x < 3/2$

.

- (A). -5
- (B). 3
- (C). 0
- (D). $3/2$

Answer

C

2. H.C.F. of $a^2 - b^2$ and $a^3 - b^3$ is.

- (A). $a - b$
- (B). $a + b$
- (C). $a^2 + ab + b^2$
- (D). $a^2 - ab + b^2$

Answer

A

3. The factors of $x^2 - 5x + 6$ are.

- (A). $x + 1, x - 6$
- (B). $x - 2, x - 3$
- (C). $x + 6, x - 1$
- (D). $x + 2, x + 3$

Answer

B

4. $(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b})$.

(A). $a^2 + b^2$

(B). $a^2 + b^2$

(C). $a - b$

(D). $a + b$

Answer

C

5. The logarithm of unity to any base is.

(A). 1

(B). 10

(C). e

(D). 0

Answer

D

6. The value of i^9 is.

(A). i

(B). -1

(C). 1

(D). $-i$

Answer

A

7. Product of $\begin{bmatrix} x & y \end{bmatrix} \begin{bmatrix} 2 \\ -1 \end{bmatrix}$ is = .

(A). $\begin{bmatrix} 2x & y \end{bmatrix}$

(B). $\begin{bmatrix} x & -2y \end{bmatrix}$

(C). $\begin{bmatrix} 2x & -y \end{bmatrix}$

(D). $\begin{bmatrix} x & +2y \end{bmatrix}$

Answer

C

Answer

B

11. The right bisector of the sides of a triangle are.

- (A). Non-concurrent
- (B). Parallel
- (C). Concurrent
- (D). Equal

Answer

C

12. In a parallelogram opposite sides are.

- (A). Un-equal
- (B). Non-Parallel
- (C). Non-Concurrent
- (D). Congruent

Answer

D

13. Three points are said to be ____ if they lie on same line.

- (A). Collinear
- (B). Parallel
- (C). Non-collinear
- (D). Concurrent

Answer

A

14. Distance between points (0,0) and (1,1) is.

- (A). 0
- (B). 1
- (C). 2
- (D). $\sqrt{2}$

Answer

B

15. Point (2, -3) lies in quadrant.

- (A). I
- (B). II
- (C). III
- (D). IV

Answer
C

Q.2 i) Define Singular and Non-singular matrix.

(Marks 2)

Q.2 (ii) Find the product: $\begin{bmatrix} 1 & 2 \end{bmatrix} \begin{bmatrix} 5 \\ -4 \end{bmatrix}$. **(Marks 2)**

Q.2 iii) Define additive identity.

Q.2 (iv) Simplify. $\left(\frac{x^3 y^4 z^5}{x^{-2} y^{-1} z^{-5}} \right)^{\frac{1}{5}}$ **(Marks 2)**

Q2 v). Express in scientific notation . 5700 **(Marks 2)**

Q.2 vi). Find the value of x when, $\log_x 64 = 2$ **(Marks 2)**

Q.2 vii). Define surds and give an example. **(Marks 2)**

Q.2 (viii) Simplify. $\frac{4}{5} \times \sqrt[3]{125}$ **(Marks 2)**

Q.2 (ix) Factorize. $\frac{a^2}{b^2} - 2 + \frac{b^2}{a^2}$ **(Marks 2)**

Q.3 i) Find H.C.F. of, $a^2 - b^2, a^3 - b^3$. **(Marks 2)**

Q.3 ii) Solve $9 - 7x > 19 - 2x$, where $x \in \mathbb{R}$. **(Marks 2)**

Q.3 iii) Define inequality. **(Marks 2)**

Q.3 iv) Find the values of m and of the given line $3x + y - 1 = 0$ by expressing it in the form $y = mx + c$. **(Marks 2)**

Q.3 v) Define Cartesian plane. **(Marks 2)**

Q.3 vi) Define equilateral triangle. **(Marks 2)**

Q.3 vii) Find the midpoint of the line segment joining A(2, 5), B(-1, 1).
(Marks 2)

Q.3 vii) What do you mean by congruency of a triangle?
(Marks 2)

Q.3 ix) Define point of trisection of a median.
(Marks 2)

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

Q.4 ii) Explain whether the given 2cm, 3cm, 5cm can be the length of a triangle?
(Marks 2)

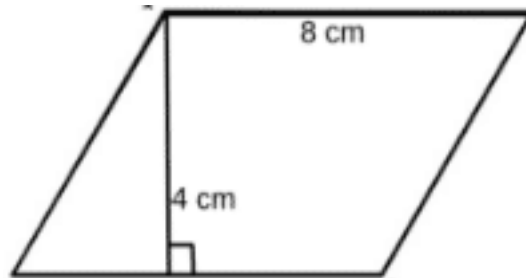
Q.4 iii). Define similar triangles.

Q.4 iv). State Pythagoras Theorem.
(Marks 2)

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

Q.4 vi) Define triangular region.: (Marks 2)

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



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

Q.4 ix) Define centroid of a triangle? (Marks 2)

Q.5 a) Solve by using the Cramer's rule. (Marks 4)

$$\begin{aligned} 3x - 2y &= -6 \\ 5x - 2y &= -10 \end{aligned}$$

Q.5 (b) Simplify $\sqrt[3]{\frac{a^l}{a^m}} \times \sqrt[3]{\frac{a^m}{a^n}} \times \sqrt[3]{\frac{a^n}{a^l}}$ (Marks 4)

Q.6 (a) Use log tables to find the values $\frac{(8.97)^3 \times (3.95)^2}{\sqrt[3]{15.37}}$ (Marks 4)

Q.6 b) Find the value $ab + bc + ca$ if $a + b + c = -1$, $a^2 + b^2 + c^2 = 45$. (Marks 4)

Q.7 a) If $(x - 1)$ is a factor of $x^3 - kx^2 + 11x - 6$, then find the value of k . (Marks 4)

Q.7 b) Find the H.C.F. by division method.
 $x^3 - 3x^2 - 16x + 12$, $x^3 + x^2 - 10x + 8$ (Marks 4)

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

Q.8 b) Construct a triangle ABC and draw bisector of its angles:
 $m\angle A = 4.6^\circ$, $m\angle B = 5^\circ$, $m\angle C = 5.1^\circ$ (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 the triangles on equal bases and of equal altitudes are equal in area. (Marks 8)

FAISALABAD BOARD

GRADE 9

Mathematics

2018 GROUP 2

Lesson 1 of 39

Section-A (MCQs)

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i) If $(x,0)=(0,y)$ then (x,y) is: (Mark 1)

A. (0,1)

B. (1,0)

C. (0,0)

D. (1,1)

Answer:

C. (0,0)

ii) Distance between the points (1,0) and (0,1) is:

(Mark 1)

A. $\sqrt{2}$

B. 0

C. 1

D. 2

Answer:

A. $\sqrt{2}$

iii) In any triangle there can beright angle.

(Mark 1)

A. 2

B. 1

C. 3

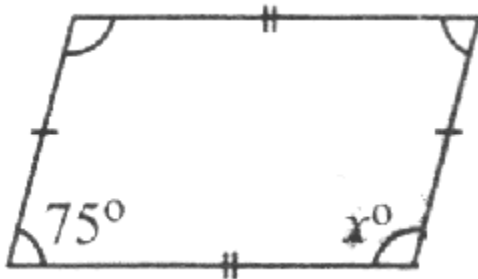
D. None of these

Answer:

B. 1

iv) In figure $x^\circ = \dots\dots\dots$

(Mark 1)



A. 60°

B. 45°

C. 75°

D. 105°

Answer:

D. 105°

v) The symbol is used for perpendicular:

(Mark 1)

A. T

B. \perp

C. \cong

D. \sim

Answer:

B. \perp

vi) How many number of lines can be drawn through two points?

(Mark 1)

A. 3

B. 4

C. 2

D. 1

Answer:

D. 1

vii) If "a" is the side of a square then its area is:

(Mark 1)

A. a

B. a^2

C. 1

D. 2

Answer:

B. a^2

viii) The right bisectors of three sides of a triangle are:

(Mark 1)

A. Congruent

B. Parallel

C. Concurrent

D. Collinear

Answer:

C. Concurrent

ix) Order of transpose of $\begin{bmatrix} 2 & 1 \\ 0 & 1 \\ 3 & 2 \end{bmatrix}$ is: (Mark 1)

A. 3-by-2

B. 2-by-3

C. 1-by-3

D. 3-by-1

Answer:

B. 2-by-3

x) Radical form of $4^{\frac{2}{3}}$ is : (Mark 1)

A. $\sqrt[3]{4^2}$

B. $\sqrt{4^3}$

C. $\sqrt[2]{4^3}$

D. $\sqrt{4^6}$

Answer:

A. $\sqrt[3]{4^2}$

C. $n \log m$

xii) $a^3+b^3=$

(Mark 1)

A. $(a-b)(a^2+ab+b^2)$

B. $(a-b)(a^2-ab-b^2)$

C. $(a+b)(a^2-ab+b^2)$

D. $(a-b)(a^2-ab-b^2)$

Answer:

C. $(a+b)(a^2-ab+b^2)$

xiii) The factors of $3x^2-x-2$ 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. $(x+1)(3x+2)$

xiv) H.C.F of $(x-2)$ and (x^2+x-6) are:

(Mark 1)

A. (x^2+x-6)

B. $(x+3)$

C. $(x-2)$

D. $(x+2)$

Answer:

C. $(x-2)$

xv) $x = \dots\dots\dots$ is a solution of inequality $-2 < x < \frac{3}{2}$. (Mark 1)

A. -5

B. 3

C. 0

D. $\frac{3}{2}$

Answer:

C. 0

Q.2 i) Define matrix.

(Marks 2)

Q.2 ii) If $A = \begin{bmatrix} 1 & -2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 7 \\ -3 & 8 \end{bmatrix}$ then find $3A-2B$.

(Marks 2)

Q.2 iii) Define real numbers.

(Marks 2)

Q.2 iv) Evaluate: i^{27}

(Marks 2)

Q.2 v) Express in scientific notation:0.00643 (Marks 2)

Q.2 vi) Write in the form of single logarithm: $\log 5 + \log 6 - \log 2$ (Marks 2)

Q.2 vii) Define polynomial. (Marks 2)

Q.2 viii) Rationalize the denominator of $\frac{2}{\sqrt{5} + \sqrt{2}}$ (Marks 2)

Q.2 ix) Factorize: $x^2 - a^2 + 2a - 1$ (Marks 2)

Q.3 i) Find the L.C.M by factorization : $39x^7y^3z, 91x^5y^6z^7$ (Marks 2)

Q.3 ii) Define equivalent equations. (Marks 2)

Q.3 iii) Solve: $|2x + 5| = 11$ (Marks 2)

Q.3 iv) Draw $(-3, -3)$ on graph paper. (Marks 2)

Q.3 v) Find the value of m and c of $3 - 2x + y = 0$ by expressing it in the form of $y = mx + c$. (Marks 2)

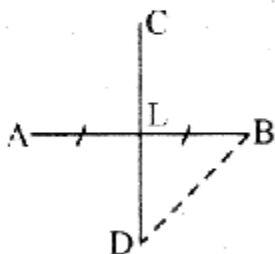
Q.3 vi) Define non-collinear points. (Marks 2)

Q.3 vii) Find the mid-point of the line segment joining pairs of points $A(6, 6), B(4, -2)$ (Marks 2)

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

Q.3 ix) Find the value of m and n in parallelogram LMNP, (Marks 2)

Q.4 i) In the given figure, \overline{CD} is right bisector of the line segment \overline{AB} . If $m\overline{AB} = 6$ cm, then find the $m\overline{AL}$ and $m\overline{LB}$.



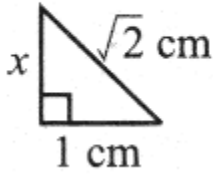
(Marks 2)

Q.4 ii) Define obtuse angle triangle. (Marks 2)

Q.4 iii) Define similar triangles.

(Marks 2)

Q.4 iv) Find the value of x in the given figure.



(Marks 2)

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

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

Q.4 vii) Define the rectangular region.

(Marks 2)

Q.4 viii) Construct a 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.4 ix) Define incenter of the triangle.

(Marks 2)

Q.5 a) Solve by using Cramer's rule: $2x-2y=4$, $3x+2y=6$

(Marks 4)

Q.5 b) Simplify $\left(\frac{a^p}{a^q}\right)^{p+q} \cdot \left(\frac{a^q}{a^r}\right)^{q+r} \div 5(a^p \cdot a^r)^{p-r}$, $a \neq 0$ (Marks 4)

Q.6 a) Use log tables to find the values of 0.8176×13.64

(Marks 4)

Q.6 b) If $x+y=7$ and $xy=12$, then find the values of x^3+y^3 (Marks 4)

Q.7 a) Factorize: $(x^2-4x-5)(x^2-4x-12)-144$ (Marks 4)

Q.7 b) Find the value of k for which the given expression will be perfect square: $4x^4-12x^3+37x^2-42x+k$

(Marks 4)

Q.8 a) Solve then inequality: $4x-1 \leq 3 \leq 7+2x$, where $x \in \mathbb{R}$ (Marks 4)

Q.8 a) Construct triangle PQR and draw its altitude:

$m\overline{PQ} = 6$ cm, $m\overline{QR} = 4.5$ cm, $m\overline{PR} = 5.5$ cm (Marks 4)

Q.9 a) prove that any point on the right bisector of a line segment is equidistant from its end points. (Marks 4)

Q.9 b) Prove that triangles on equal bases and equal altitudes are equal in area.

(Marks 8)

