

SAHIWAL BOARD

GRADE 10

MATH

2018 GROUP 1

Section-A (MCQs)

i) A collection of well defined distinct objects is called (Mark 1)

- A. Subset
- B. Power set
- C. Set
- D. Union set

Answer:

C. Set

ii) Partial fraction of $\frac{x+2}{(x+1)(x^2+2)}$ are of the form (Mark 1)

- A. $\frac{A}{x+1} + \frac{Bx+C}{x^2+2}$
- B. $\frac{Ax+B}{x+1} + \frac{C}{x^2+2}$
- C. $\frac{A}{x+1} + \frac{Bx}{x^2+2}$
- D. $\frac{A}{x+1} + \frac{B}{x^2+2}$

Answer:

A. $\frac{A}{x+1} + \frac{Bx+C}{x^2+2}$

iii) If $u \propto v^2$, then (Mark 1)

- A. $u = v^2$
- B. $u = kv^2$
- C. $u v^2 = k$
- D. $u v^2 = 1$

Answer:

B. $u = kv^2$

iv) Roots of the equation $4x^2-5x+2=0$ are (Mark 1)

- A. Irrational
- B. Imaginary
- C. Rational
- D. Equal

Answer:

B. Imaginary

v) Find x in the proportion 4:x::5:15

(Mark 1)

A. 75/4

B. 4/3

C. 3/4

D. 12

Answer:

D. 12

vi) If α, β are the roots of $7x^2 - x + 4 = 0$ then $\alpha\beta$ is

(Mark 1)

A. -1/7

B. 4/7

C. 7/4

D. -4/7

Answer:

B. 4/7

vii) The quadratic formula is

(Mark 1)

A.
$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

B.
$$\frac{b \pm \sqrt{b^2 - 4ac}}{2a}$$

C.
$$\frac{-b \pm \sqrt{b^2 + 4ac}}{2a}$$

D.
$$\frac{b \pm \sqrt{b^2 + 4ac}}{2a}$$

Answer:

A.
$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

viii) A histogram is a set of adjacent

(Mark 1)

A. Rectangles

B. Squares

C. Circles

D. Triangles

Answer:

A. Rectangles

ix) $20^\circ =$ _____

(Mark 1)

A. $360'$

B. $630'$

C. $1200'$

D. $3600'$

Answer:

C. $1200'$

x) The distance of any point of the circle to its centre is called (Mark 1)

A. Radius

B. Diameter

C. A chord

D. An arc

Answer:

A. Radius

xi) A circle has only one

(Mark 1)

A. Centre

B. Diameter

C. Chord

D. Secant

Answer:

A. Centre

xii) A 4 cm long chord subtends a central angle of 60° . The radius of this circle

is

(Mark 1)

A. 1

B. 2

C. 3

D. 4

Answer:

D. 4

xiii) The measure of external angle of a regular hexagon is (Mark 1)

A. $\pi/4$

B. $\pi/3$

C. $\pi/6$

D. $\pi/2$

Answer:

B. $\pi/3$

xiv) How many tangents can be drawn from a point outside the circles?

(Mark 1)

A. 1

B. 2

C. 3

D. 4

Answer:

B. 2

xv) Power set of an empty set is

(Mark 1)

A. \emptyset

B. $\{a\}$

C. $\{\emptyset, \{a\}\}$

D. $\{\emptyset\}$

Answer:

D. $\{\emptyset\}$

Q.2 i) Define reciprocal equation.

(Marks 2)

Q.2 ii) Solve by factorization $x^2-11x=152$

(Marks 2)

Q.2 iii) Find the discriminant of the equation $2x^2-7x+1=0$

(Marks 2)

Q.2 iv)

(Marks 2)

█ Evaluate $(9 + 4\omega + 4\omega^2)^3$

█

Q.2 v) If α, β are the roots of the equation $x^2+px+q=0$ then evaluate $\alpha/\beta+\beta/\alpha$

(Marks 2)

Q.2 vi) Write the quadratic equation having roots -2,3.

(Marks 2)

Q.2 vii) Find x in the given proportion $8-x:11-x:: 16-x:25-x$

(Marks 2)

Q.2 viii) $A \propto 1/r^2$ and $A = 2$ when $r = 3$, find r when $A = 72$.

(Marks 2)

Q.2 ix) Find a mean proportional 20, 45.

(Marks 2)

Q.3 i) Define proper fraction.

(Marks 2)

Q.3 ii) Resolve into partial fraction $1/x^2-1$

(Marks 2)

Q.3 iii) Define one-one function.

(Marks 2)

Q.3 iv)

(Marks 2)

█ If $X = \{1,4,7,9\}$ $Y = \{2,4,5,9\}$ then find $X \cap Y$.

█

Q.3 v) If $A = \{0,2,4\}$, $B = \{-1,3\}$ then find $A \times B$.

(Marks 2)

Q.3 vi) Find the sets X and Y if $X \times Y = \{(a,a),(b,a),(c,a),(d,a)\}$

(Marks 2)

Q.3 vii) Define Median.

(Marks 2)

Q.3 viii) Find arithmetic mean by direct method for the given set of data 12,14,17,20,24,29,35,45

(Marks 2)

Q.3 ix) The marks obtained by seven students in mathematics are as follows. Calculate arithmetic mean.

(Marks 2)

Q.4 i) What is quadrantal angle?

(Marks 2)

Q.4 ii) Prove that $\sin^2\theta/\cos\theta+\cos\theta = \sec\theta$

(Marks 2)

Q.4 iii) Find r, when $l = 4\text{cm}$, $\theta = 1/4$ radian

(Marks 2)

Q.4 iv) Define obtuse angle.

(Marks 2)

Q.4 v) What is circum circle?

(Marks 2)

Q.4 vi) Define tangent of circle.

(Marks 2)

Q.4 vii) What is segment of a circle.

(Marks 2)

Q.4 viii) What is cyclic quadrilateral?

(Marks 2)

Q.4 ix) Define incircle.

(Marks 2)

Q.5 a) Solve the quadratic equation by using quadratic formula

$$2+9x =$$

$$5x^2$$

(Marks 4)

Q.5 b) Solve the simultaneous equations

$$x^2+2y^2=22; \quad 5x^2+y^2 =$$

29

(Marks 4)

Q.6 a)

(Marks 4)

Componendo – Dividendo Theorem, solve the following equation.

$$\frac{(x+5)^2 - (x-3)^2}{(x+5)^2 + (x-3)^2} = \frac{13}{14}$$

Q.6 b) Resolve into partial fraction $7x+4/(3x+2)(x+1)^2$

(Marks 4)

Q.7 a) If $U = \{1,2,3,4,5,\dots,10\}$, $A = \{1,3,5,7,9\}$, $B = \{1,4,7,10\}$ then verify that $(A-B)' = A' \cup B$

(Marks 4)

Q.7 b) Calculate the variance for the data

10,8,9,7,5,12,8,6,8,2

(Marks

4)

Q.8 a) Verify the identity $\sqrt{\frac{\sec\theta+1}{\sec\theta-1}} = \frac{\sec\theta+1}{\tan\theta}$ (Marks 4)

Q.8 b) Draw two common tangents to two touching circles of radii 2.5 cm and 3.5 cm. (Marks 4)

Q.9) Prove that two chords of a circle which are equidistant from the centre, are congruent. (Marks 8)

SAHIWAL BOARD

GRADE 10

MATH

2018 GROUP 2

Section-A (MCQs)

i) A collection of well defined distinct objects is called (Mark 1)

- A. Subset
- B. Power set
- C. Set
- D. Union set

Answer:

C. Set

ii) Partial fraction of $\frac{x+2}{(x+1)(x^2+2)}$ are of the form

(Mark 1)

A. $\frac{A}{x+1} + \frac{Bx+C}{x^2+2}$

B. $\frac{Ax+B}{x+1} + \frac{C}{x^2+2}$

C. $\frac{A}{x+1} + \frac{Bx}{x^2+2}$

D. $\frac{A}{x+1} + \frac{B}{x^2+2}$

Answer:

A. $\frac{A}{x+1} + \frac{Bx+C}{x^2+2}$

iii) If $u \propto v^2$, then

(Mark 1)

A. $u = v^2$

B. $u = k v^2$

C. $u v^2 = k$

D. $u v^2 = 1$

Answer:

B. $u = k v^2$

iv) Roots of the equation $4x^2-5x+2=0$ are

(Mark 1)

A. Irrational

B. Imaginary

C. Rational

D. Equal

Answer:

B. Imaginary

v) Find x in the proportion 4:x::5:15

(Mark 1)

A. $75/4$

B. $4/3$

C. $3/4$

D. 12

Answer:

D. 12

vi) If α, β are the roots of $7x^2-x+4=0$ then $\alpha\beta$ is

(Mark 1)

A. $-1/7$

B. $4/7$

C. $7/4$

D. $-4/7$

Answer:

B. $4/7$

vii) The quadratic formula is

(Mark 1)

A.
$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

B.
$$\frac{b \pm \sqrt{b^2 - 4ac}}{2a}$$

C.
$$\frac{-b \pm \sqrt{b^2 + 4ac}}{2a}$$

D.
$$\frac{b \pm \sqrt{b^2 + 4ac}}{2a}$$

Answer:

A.
$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

viii) A histogram is a set of adjacent

(Mark 1)

A. Rectangles

B. Squares

C. Circles

D. Triangles

Answer:

A. Rectangles

ix) $20^\circ =$ _____

(Mark 1)

A. $360'$

B. $630'$

C. $1200'$

D. $3600'$

Answer:

C. $1200'$

x) The distance of any point of the circle to its centre is called (Mark 1)

A. Radius

B. Diameter

C. A chord

D. An arc

Answer:

A. Radius

xi) A circle has only one

(Mark 1)

A. Centre

B. Diameter

C. Chord

D. Secant

Answer:

A. Centre

xii) A 4 cm long chord subtends a central angle of 60° . The radius of this circle is

(Mark 1)

A. 1

B. 2

C. 3

D. 4

Answer:

D. 4

xiii) The measure of external angle of a regular hexagon is

(Mark 1)

A. $\pi/4$

B. $\pi/3$

C. $\pi/6$

D. $\pi/2$

Answer:

A. $\pi/4$

xiv) How many tangents can be drawn from a point outside the circles?

(Mark 1)

A. 1

B. 2

C. 3

D. 4

Answer:

B. 2

xv) Power set of an empty set is

(Mark 1)

A. \emptyset

B. $\{a\}$

C. $\{\emptyset, \{a\}\}$

D. $\{\emptyset\}$

Answer:

D. $\{\emptyset\}$

Q.2 i) Define reciprocal equation.

(Marks 2)

Q.2 ii) Solve by factorization $x^2-11x=152$

(Marks 2)

Q.2 iii) Find the discriminant of the equation $2x^2-7x+1=0$

(Marks 2)

Q.2 iv)

(Marks 2)



Evaluate $(9 + 4\omega + 4\omega^2)^3$



Q.2 v) If α, β are the roots of the equation $x^2+px+q=0$ then evaluate $\alpha/\beta+\beta/\alpha$ (Marks 2)

Q.2 vi) Write the quadratic equation having roots -2,3. (Marks 2)

Q.2 vii) Find x in the given proportion 8-x:11-x:: 16-x:25-x (Marks 2)

Q.2 viii) $A \propto 1/r^2$ and $A = 2$ when $r = 3$, find r when $A = 72$. (Marks 2)

Q.2 ix) Find a mean proportional 20, 45. (Marks 2)

Q.3 i) Define proper fraction. (Marks 2)

Q.3 ii) Resolve into partial fraction $1/x^2-1$ (Marks 2)

Q.3 iii) Define one-one function. (Marks 2)

Q.3 iv) (Marks 2)

If $X = \{1,4,7,9\}$ $Y = \{2,4,5,9\}$ then find $X \cap Y$.



Q.3 v) If $A = \{0,2,4\}$, $B = \{-1,3\}$ then find $A \times B$. (Marks 2)

Q.3 vi) Find the sets X and Y if $X \times Y = \{(a,a),(b,a),(c,a),(d,a)\}$ (Marks 2)

Q.3 vii) Define Median. (Marks 2)

Q.3 viii) Find arithmetic mean by direct method for the given set of data 12,14,17,20,24,29,35,45 (Marks 2)

Q.3 ix) The marks obtained by seven students in mathematics are as follows. Calculate arithmetic mean. (Marks 2)

Student No.	1	2	3	4	5	6	7
Marks	45	60	74	58	65	63	49

Q.4 i) What is quadrantal angle? (Marks 2)

Q.4 ii) Prove that $\sin^2\theta/\cos\theta+\cos\theta = \sec\theta$ (Marks 2)

Q.4 iii) Find r, when $l = 4\text{cm}$, $\theta = 1/4$ radian (Marks 2)

Q.4 iv) Define obtuse angle. (Marks 2)

Q.4 v) What is circum circle? (Marks 2)

Q.4 vi) Define tangent of circle. (Marks 2)

Q.4 vii) What is segment of a circle. (Marks 2)

Q.4 viii) What is cyclic quadrilateral? (Marks 2)

Q.4 ix) Define incircle. (Marks 2)

Q.5 a) Solve the quadratic equation by using quadratic formula $2+9x = 5x^2$ (Marks 4)

Q.5 b) Solve the simultaneous equations $x^2+2y^2=22$; $5x^2+y^2 = 29$ (Marks 4)

Q.6 a) (Marks 4)

Componendo – Dividendo Theorem, solve the following equation.

$$\frac{(x+5)^2 - (x-3)^2}{(x+5)^2 + (x-3)^2} = \frac{13}{14}$$

Q.6 b) Resolve into partial fraction $7x+4/(3x+2)(x+1)^2$ (Marks 4)

Q.7 a) If $U = \{1,2,3,4,5,\dots,10\}$, $A = \{1,3,5,7,9\}$, $B = \{1,4,7,10\}$ then verify that $(A-B)' = A' \cup B$ (Marks 4)

Q.7 b) Calculate the variance for the data 10,8,9,7,5,12,8,6,8,2 (Marks 4)

Q.8 a) Verify the identity $\sqrt{\frac{\sec\theta+1}{\sec\theta-1}} = \frac{\sec\theta+1}{\tan\theta}$ (Marks 4)

Q.8 b) Draw two common tangents to two touching circles of radii 2.5 cm and 3.5 cm. (Marks 4)

Q.9) Prove that two chords of a circle which are equidistant from the centre, are congruent. (Marks 8)