

MUMBAI MATH CHAMPIONSHIP

MOCK TEST – Grade 9

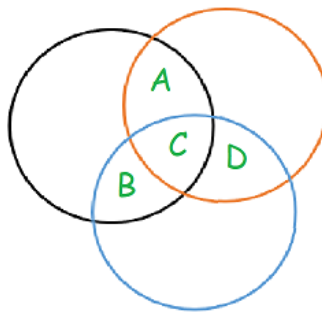
Total Marks: 100

Time Duration: 1 hour

Section: Logical Reasoning

Q1.(Venn Diagram)

In the given Venn diagram, black circle denotes 'A black car'; orange circle denotes a BMW; and blue circle denotes more than one car. Which part of the diagram shows 'more than one black BMW'?



- (A) D
- (B) A
- (C) B
- (D) C

Q2.(Calendar)

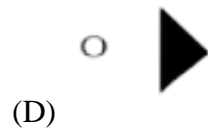
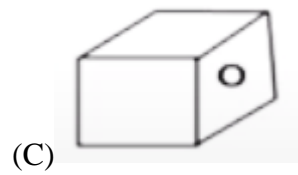
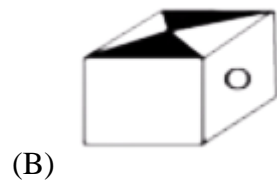
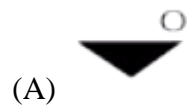
Which of the given options shows a non-leap year?

- (A) 700 AD
- (B) 800 AD
- (C) 1200 AD

(D)400 AD

Q3.(Shapes and figures)

Choose from the following options that the box shall be formed by folding this figure.





Q4.(Factorization)

Which of the following will be a factor of $a^2 + b - ab - a$

(A) (1-a)

(B)(1-b)

(C)(ab)

(D)(a-b)

Q5.(Coding-Decoding)

In a certain code language, MOTIVATION is coded as NPUJWBUJPO. Then what will be the code for INSPIRATION?

(A)KIOPBUGJPO

(B)JOTQJSBUJPO

(C)NPUGHYTJPO

(D)OPJUBSJQTOJ

Q6.(Coordinate Geometry)

If the perpendicular distance of a point P from x-axis is 8 units, then the point has

(A) y-coordinate = 8 or -8

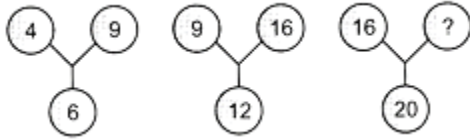
(B) x-coordinate = -8 or 8

(C) y-coordinate = -8

(D) x-coordinate = 8

Q7.(Missing Number)

Choose the correct alternative for the question mark given in the following figure.



- (A) 25
- (B) 50
- (C) 16
- (D) 60

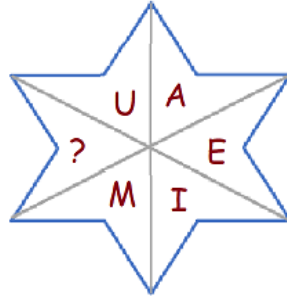
Q8.(Direction)

Nancy drives 9 km due north; then 1 km due east; then 5 km due south; then 2 km due east; then finally 4 km due south. How far is she from her initial position?

- (A) 4.5 km
- (B) 3.5 km
- (C) 4 km
- (D) 3 km

Q9.(Word puzzle)

Find the missing letter from the given word puzzle.



- (A)Q
- (B)P
- (C)N
- (D) X

Q10.(Series)

Which term will come next in the following series?

AB, DE, HI, MN, _____

- (A)RS
- (B)ST
- (C)TU
- (D)OP

Section: Mental Math

Q11.(Polynomials)

Find the value of k if $m - 5 + \frac{k}{m+7} = \frac{m^2+5-3m}{m+7}$

- (A) 8
- (B) $5m + 8$
- (C) $40 - 5m$
- (D) 10

Q12.(Lines and Angles)

Find the measure of an angle, which is 30° less than its complement.

- (A) 30°
- (B) 60°
- (C) 90°
- (D) 45°

Q13.(Statistics)

The mean of 40 terms is 32 and if each term is multiplied by 'x' then the new mean will be

- (A) $32 - x$
- (B) $32 + x$
- (C) $32x$
- (D) $40 + x$

Q14.(Coordinate Geometry)

If the point (2,4) lies on the graph of the equation $4y = bx + 12$, then the value of b is

- (A) $\frac{5}{3}$
- (B) 2
- (C) 0
- (D) None of these

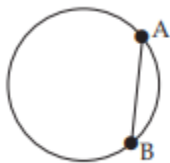
Q15.(Algebra)

How many solutions does a linear equation in one variable has?

- (A) Infinite
- (B) 2
- (C) 1
- (D) 0

Q16.(Geometry:Circle)

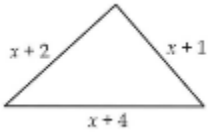
Which term is used to describe line segment AB?



- (A) Diameter
- (B) Chord
- (C) Minor
- (D) Radius

Q17.(Area and Perimeter)

Write an expression to describe the perimeter of the rectangle shown in the given figure



- (A) $2x + 4$
- (B) $3x$
- (C) $4x + 4$
- (D) $3x + 7$

Q18.(Mensuration)

What is the volume of a brick of an ice-cream with length 15 cm, breadth 5 cm and height 4 cm?

- (A) 300 cm^3
- (B) 200 cm^3
- (C) 176 cm^3
- (D) 350 cm^3

Q19.(Number System)

Simplify:

$$(\sqrt{3} + \sqrt{2}) (\sqrt{3} - \sqrt{2})$$

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

Q20.(Statistics)

If the given figure is the Tally marks of any data, then what is its frequency?



- (A) 4
- (B) 9
- (C) 5
- (D) None of these

Q21.(Coordinate Geometry)

Which one of the following options is true for the equation $y = 7x - 8$?

- (A) infinitely many solutions
- (B) only two solutions
- (C) a unique solution
- (D) none of these

Q22.(Geometry:Triangles)

For two triangles, if two angles and the included side of one triangle are equal to two angles and the included side of another triangle. Then, the congruency rule is:

- (A) SAS
- (B) AAA
- (C) ASA
- (D) None of these

Q23.(Rectilinear Figures)

Choose the incorrect property of a Parallelogram from the options given below.

- (A) Opposite sides are congruent.
- (B) Consecutive angles are complementary
- (C) Diagonals of a parallelogram bisect each other
- (D) All are correct

Q24.(Coordinate Geometry)

Point B is (5,2). Find the new coordinates of point B after completing a rotation in reflection to the origin with 90° clockwise.

- (A) (5,5)
- (B) (5,2)
- (C) (2,-5)
- (D) (-5,-2)

Q25.(Triangles)

Find the area of the triangle whose side is 4 cm each?

- (A) $4\sqrt{3} \text{ cm}^2$
- (B) 16 cm^2
- (C) $8\sqrt{6} \text{ cm}^2$
- (D) 16 cm^2



Section: Math

Q26.(Algebra: Linear Equation in two variables)

How many possible factors can we get by factorizing $a^3 - 3a^2 + a - 3$?

- (A)3
- (B)2
- (C)1
- (D)0

Q27.(Rectilinear figures)

A hexagon has been divided in 6 equal triangular parts. What will be the area of one triangle, if the measure of side of the hexagon is 8 cm.

- (A) 25.71 sq cm
- (B) 27.71 sq. cm
- (C) 64 sq. cm
- (D) 166.26 sq. cm

Q28.(Rectilinear figures)

Which of the given statements is not correct?

- (A)Each diagonal of a rhombus bisects it
- (B)Diagonals of a quadrilateral bisects each other
- (C)Diagonals of a rectangle bisects each other
- (D)Every rhombus is a parallelogram



Q29.(Rational Numbers)

Which of the following is irrational?

(A) $\sqrt{\frac{81}{9}}$

(B) $\frac{567}{7}$

(C) $\frac{\sqrt{12}}{\sqrt{5}}$

(D) $\sqrt[3]{512}$

Q30.(Coordinate Geometry)

If the coordinate of the two points are M(-6,3) and N(-9,-7), then (abscissa of M)-(ordinate of N) is?

(A) 13

(B) 15

(C) 0

(D) 1

Q31.(Geometry: Triangles)

An exterior angle of a triangle is $(5x-20)^\circ$ and the measure of the two opposite interior angles are 24° and $(x+20)^\circ$. Find the value of x?

(A) 6

(B) 10

(C) 4

(D) 7



Q32.(Linear Equation in two variables)

Delhi Public School earned Rs7,509 on coupon sales for different games in Carnival organized on Children's Day. The cost of one coupon was ₹20. If x represents the number of coupons used for the games. Which of the following equations could be used to determine the number of coupons used for the games?

(A) $x = 7509 - 20$

(B) $x = 7509$

(C) $20x = -7509$

(D) $20x = 7509$

Q33.(Number System)

Which of the given numbers is a rational number?

(A) $\sqrt{529}$

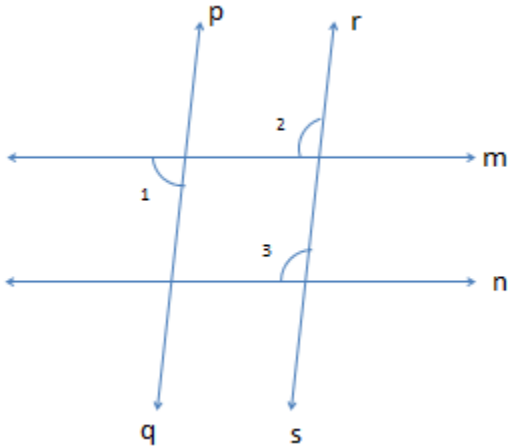
(B) $\frac{9}{0}$

(C) $\sqrt{13}$

(D) π

Q34.(Lines and Angles)

In the given figure, $m \parallel n$ and $\angle 1 = 64^\circ$ find $\angle 2$?



- (A) 90°
- (B) 116°
- (C) 84°
- (D) 115°

Q35.(Statistics)

Find the median for the given data:-

37, 86, 44, 52, 36, 37, 90, 12, 19

- (A) 36
- (B) 37
- (C) 44
- (D) 35.5



Q36.(Mensuration)

How many Covid-Testing Kits of size 10 cm x 8 cm x 5 cm can be packed in a steel box of size 50 cm x 35 cm x 40 cm.

- (A) 250
- (B) 4,000
- (C) 175
- (D) 560

Q37.(Polynomials)

If the sum of two numbers a and b is 12 and the sum of their squares is 48. Find the value of product of two numbers a and b?

- (A) 108
- (B) 14
- (C) 143
- (D) 48

Q38.(Triangles)

Two sides of a triangle are of length 6 cm and 2.4 cm. The length of the third side of the triangle cannot be

- (A) 5.7 cm
- (B) 4.4 cm
- (C) 2 cm
- (D) 10 cm

Q39.(Statistics)

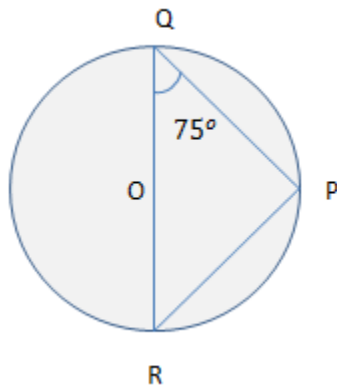
Calculate the mean for the following distribution:

X	-1	2	4	5	6
f	4	7	4	4	2

- (A) 1.43
- (B) 5.8
- (C) 45
- (D) 2.76

Q40.(Geometry:Circles)

In a given circle what is the value of $\angle PRQ$ if $\angle PQR = 75^\circ$



- (A) 15°
- (B) 39°
- (C) 76°
- (D) 90°

Section: Achiever Section

Q41.(Area and Perimeter)

A, B, C and D are points on the circumference of a circle of radius r , such that ABC is an equilateral triangle and AC is a diameter of the circle. What is the perimeter of the quadrilateral ABCD?

- (A) $r(1 + \sqrt{5})$
- (B) $2r(2r + \sqrt{7})$
- (C) $2r(1 + \sqrt{3})$
- (D) $2r(2 + \sqrt{2})$

Q42.(Mensuration)

Find the area of a rhombus having diagonals of length 10.5 cm and 14.5 cm.

- (A) 76.125 cm^2
- (B) 56.125 cm^2
- (C) 76.50 cm^2
- (D) 56.50 cm^2

Q43.(Coordinate Geometry)

Which of the given points will lie in second quadrant?

- (A) the abscissa is -4 and ordinate is -2
- (B) the ordinate is 5 and abscissa is 5
- (C) the abscissa is 8 and ordinate is 0
- (D) the ordinate is 3 and abscissa is -4

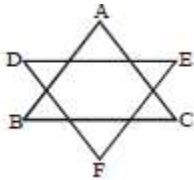
Q44.(Triangles)

In triangle PQR, point M, N, O are the mid-points of the sides PQ,QR and RP respectively. If area of triangle PQR is 40 sq units. Find the area of triangle MNO.

- (A) 10 sq units
- (B) 25 sq units
- (C) 40 sq units
- (D) 44 sq units

Q45.(Lines and Angles)

Find the value of $\sqrt{A}+\sqrt{B}+\sqrt{C}+\sqrt{D}+\sqrt{E}+\sqrt{F}$?



- (A) 540°
- (B) 360°
- (C) 180°
- (D) 270°

Q46.(Circles)

A chord of a circle is 12 cm in length and its distance from the center is 8 cm. Find the length of the chord of the same circle which is at a distance of 6 cm.

- (A) 26 cm
- (B) 16 cm
- (C) 30 cm
- (D) 49 cm

Q47.(Statistics)

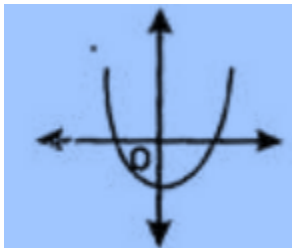
The mean weight of a class is 40.3 kg. If the weight of a new student is included, the mean increases by 700 g. Find the weight of the new student, if there were 30 students initially.

- (A) 62 kg
- (B) 63 kg
- (C) 50 kg
- (D) 40.3 kg

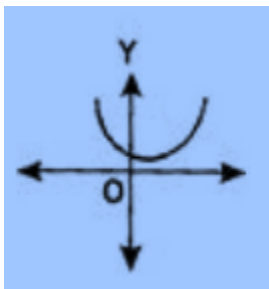
Q48.(Polynomial)

Choose the appropriate graph which represents linear polynomial

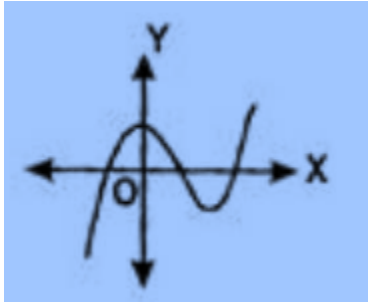
(A)



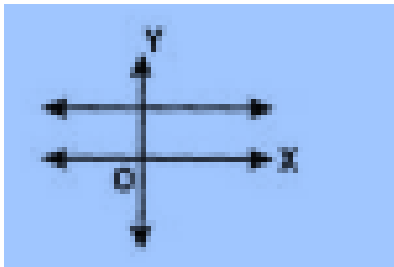
(B)



(C)



(D)



Q49.(Number system)

Choose the option which doesn't reflect a property of irrational numbers.

- (A) It includes surds
- (B) Numerator and denominator are whole numbers
- (C) Non-terminating decimals are executed
- (D) Non-recurring decimals are executed

Q50.(Polynomials)

Find the value of polynomial $2x^2 + (-3x) + 4$ at $x = -2$.

- (A) 17
- (B) 10
- (C) 18
- (D) -18

Answers

1. D

2. A

3. C

4. D

5. B

6. A

7. A

8. D

9. A

10. B

11. C

12. A

13. C

14. B

15. C

16. B

17. D

18. A

19. C

20. B

21. A

22. C



23. B

24. C

25. A

26. A

27. B

28. B

29. C

30. D

31. A

32. D

33. A

34. B

35. B

36. C

37. D

38. D

39. D

40. A

41. C

42. A

43. D

44. A

45. B



46. B

47. A

48. D

49. B

50. C