CBSE Sample Question Paper Term 1

Class – VIII (Session : 2021 - 22)

Class 08 - Mathematics
Subject- Mathematics 041 - Test - 05

Maximum Marks: 50 **Time Allowed:** 1 hour 30 minutes

General Instructions:

1. The question paper contains 50 questions

2. Attempt any 40 questions.

3. There is no negative marking.

Chapter Name	Multiple Choice Question	Total
Rational Numbers	8 (1)	**8 (8)**
Linear Equations in One Variable	6 (1)	**6 (6)**
Practical Geometry	6 (1)	**6 (6)**
Squares and Square Roots	5 (1)	**5 (5)**
Cubes and Cube Roots	3 (1)	**3 (3)**
Comparing Quantities	10 (1)	**10 (10)**
Visualising Solid Shapes	5 (1)	**5 (5)**
Exponents and Powers	5 (1)	**5 (5)**
Playing with Numbers	2 (1)	**2 (2)**
Total	**50 (50)**	**50 (50)**

CBSE Sample Question Paper Term 1

Class – VIII (Session : 2021 - 22)

SUBJECT- MATHEMATICS 041 - TEST - 05

Class 08 - Mathematics

Time Allowed: 1 hour and 30 minutes **Maximum Marks: 50**

General Instructions:

1. The question paper contains 50 questions
2. Attempt any 40 questions.
3. There is no negative marking.

1. Three rational numbers lying between $\frac{-3}{4}$ and $\frac{1}{2}$ are **[1]**

   a) $\frac{-5}{4}, 0, \frac{1}{4}$ b) $\frac{-1}{4}, 0, \frac{1}{4}$

   c) $\frac{-1}{4}, \frac{1}{4}, \frac{3}{4}$ d) $-\frac{1}{2}, 0, \frac{3}{4}$

2. Find $\frac{5}{9} + \left(-\frac{5}{18}\right) + \left(-\frac{7}{18}\right) + \frac{7}{9}$ **[1]**

   a) $\frac{2}{3}$ b) $\frac{3}{2}$

   c) -3 d) -2

3. The two irrational numbers between $\sqrt{2}$ and $\sqrt{3}$ are **[1]**

   a) 1.3010010001..... And 1.601001000100001..... b) 1.30100101..... And 1.6010010101.....

   c) 1.5010010001..... And 1.601001000100001..... d) 1.5010010001..... And 1.801001000100001.....

4. Which of the given is not true? **[1]**

   a) $\frac{2}{3} - \frac{5}{4} = \frac{5}{4} - \frac{2}{3}$ b) $\frac{2}{3} \times \frac{5}{4} = \frac{5}{4} \times \frac{2}{3}$

   c) $\frac{2}{3} + \frac{5}{4} = \frac{5}{4} + \frac{2}{3}$ d) $\frac{2}{3} \div \frac{5}{4} = \frac{2}{3} \times \frac{4}{5}$

5. If x + 0 = 0 + x = x, which is rational number, then 0 is called **[1]**

   a) multiplicative inverse of x b) additive inverse of x

   c) reciprocal of x d) identity for addition of rational numbers

6. Which of the following is not true? **[1]**

   a) Rational numbers are closed under multiplication b) Rational numbers are closed under division

   c) Rational numbers are closed under addition d) Rational numbers are closed under subtraction

7. Find: $\left(\frac{64}{25}\right)^{-\frac{3}{2}}$. **[1]**

a) 64

b) $\frac{125}{512}$

c) 125

d) 512

8. $1 \times \frac{12}{13}$ = _____. **[1]**

a) $\frac{12}{13}$

b) 1

c) 0

d) 12

9. Sum of the digits of a two-digit number is 9. When we interchange the digits, it is found that the resulting new number is greater than the original number by 27. What is the two-digit number? **[1]**

a) 36

b) 45

c) 54

d) 72

10. The number of boys and girls in a class is in the ratio 7:5. The number of boys is 8 more than the number of girls. What is the total class strength? **[1]**

a) 45

b) 0

c) 40

d) 48

11. Solve: 3x = 15 **[1]**

a) none of these

b) 3

c) 5

d) 4

12. Solve: $\frac{3x-2}{4} - \frac{2x+3}{3} = \frac{2}{3} - x$ **[1]**

a) 2

b) 3

c) 4

d) None of these

13. Solve: $\frac{m}{7} = \frac{2}{7}$ **[1]**

a) -1

b) -2

c) 1

d) 2

14. Solve: 3(5z - 7) -2(9z - 11) = 4(8x - 13) - 17 **[1]**

a) 4

b) 2

c) 5

d) 3

15. Which property is used to construct a rhombus, if its two diagonals are given? **[1]**

a) Diagonals are perpendicular to each other

b) Diagonals are bisects to each other

c) Diagonals are congruent

d) Diagonals of a rhombus bisect each other at a right angle

16. A simple closed curve made up of only _____ is called a polygon. **[1]**

a) lines

b) line segments

c) closed curves

d) curves

17. A quadrilateral can be constructed uniquely if its _____ sides and two included angles are given. **[1]**

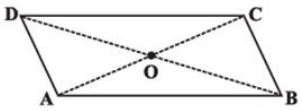
a) None of these

b) 1

c) 3

d) 2

18. Given a parallelogram ABCD. ∠DAB + ∠CDA = ... **[1]**



a) 180^o

b) 360^o

c) 90^o

d) none of these

19. A parallelogram whose all sides are equal is called _____. **[1]**

a) trapezium

b) square

c) kite

d) rectangle

20. How many measurements can determine a square? **[1]**

a) 3

b) 2

c) 4

d) 1

21. Which of the following is the square of an odd number? **[1]**

a) 144

b) 400

c) 256

d) 361

22. The value of $\sqrt{176+\sqrt{2401}}$ is **[1]**

a) 17

b) 14

c) 16

d) 15

23. 1681 plants are to be planted in a garden in such a way that each row contains as many plants as the number of rows. Find the number of rows. **[1]**

a) 43

b) 47

c) 49

d) 41

24. What will be the number of zeros in the square of 700? **[1]**

a) 4

b) 1

c) 3

d) 2

25. Which of the following is not a perfect square? **[1]**

a) 1128

b) 1156

c) 361

d) 1681

26. The cube of -25 is _____. **[1]**

a) 15625

b) 50

c) -15625

d) -15635

27. If a is ones digit and b is the tens digit of a two-digit number, then the cube of the number will be _____. **[1]**

a)

b)

$(10a + b)^{-3}$ $(10b + a)^2$

c) $(10a + b)^3$ d) $(10b + a)^3$

28. If $\sqrt[3]{\frac{x}{y}} = \frac{2}{5}$, then $\frac{x}{y}$ = _____. **[1]**

a) $\frac{125}{8}$ b) $\frac{8}{125}$

c) 8 d) 125

29. If Shilpa had Rs 600 left after spending 75% of her money, how much did she have in the beginning? **[1]**

a) None of these b) Rs 2,400

c) Rs 2,000 d) Rs 2,700

30. A scooter was bought at Rs 42,000. Its value depreciated at the rate of 8% per annum. Find its value after one year. **[1]**

a) Rs 38,640 b) Rs 35,640

c) Rs 40,640 d) None of these

31. Find the ratio of Rs 6 to 50 paise. **[1]**

a) None of these b) It is 12:1

c) It is 1:12 d) It is 1:30

32. A sum is taken for two years at 16% per annum. If interest is compounded after every three months, the number of times for which interest is charged in 2 yrs is **[1]**

a) 9 b) 6

c) 4 d) 8

33. The marked price of an article is ₹80 and it is sold at ₹76, then the discount rate is **[1]**

a) 10% b) 95%

c) approx 11 % d) 5%

34. A TV was bought at a price of Rs 21,000. After one year the value of the TV was depreciated by 5% (Depreciation means a reduction of value due to use and age of the item). Find the value of the TV after one year. **[1]**

a) Rs 19,000 b) Rs 18,950

c) Rs 19,950 d) None of these

35. If marked price of an article is ₹1200 and the discount is 12%, then the selling price of the article is **[1]**

a) ₹1344 b) ₹1212

c) ₹1056 d) ₹ 1188

36. Dinesh bought a second-hand T.V. for Rs 2,400, then spent Rs 600 on its repairs and sold it for Rs 3,500. Find his gain or loss per cent. **[1]**

a) None of these b) Loss of 20%

c) Gain of 16.67% (Approx)

d) Loss of 15%

37. The list price of a table is Rs 2,200. A discount of 20% is announced on sales. What is the amount of discount on it? **[1]**

a) Rs 220

b) Rs 440

c) None of these

d) Rs 330

38. ₹ 1600 lent at a compound interest of 5% per annum, compounded half-yearly for one year will amount to: **[1]**

a) ₹ 1680

b) ₹ 1764

c) ₹ 1640

d) ₹ 1681

39. ___ + V - E = 2 **[1]**

a) 2

b) V

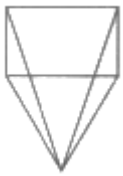
c) F

d) E

40. Which amongst the following is not a polyhedron? **[1]**

a) 

b) 

c) 

d) 

41. Which of the following cannot be true for a polyhedron? **[1]**

a) V = 4, F =6, E = 6

b) V =6, F = 8 , E =12

c) V = 4, F = 4, E = 6

d) V = 20, F = 12, E = 30

42. Find the number of rectangular faces in a decagonal prism. **[1]**

a) 8

b) 6

c) 4

d) 10

43. Which of the following 3-D shape does not have a vertex? **[1]**

a) Sphere

b) Prism

c) Pyramid

d) Cone

44. $(-9)^3 \div (-9)^8$ is equal to **[1]**

a) $(-9)^5$

b) $(9)^5$

c) $(-9)^{-5}$

d) $(9)^{-5}$

45. $\left(\frac{1}{10}\right)^0$ is equal to **[1]**

a) 10

b) $\left(\frac{1}{10}\right)$

c) 0

d) 1

46. Write the expression using exponents: $12 \times 33 \times 33 \times 33$ **[1]**

a) $12^1 \times 33^3$

b) $12^3 \times 33^1$

c) $12^3 \times 33^3$

d) $12^1 \times 33^1$

47. Express 3×10^{-5} in the usual form. **[1]**

a) 0.003

b) 0.0003

c) 0.00003

d) 0.03

48. 3^{-2} can be written as **[1]**

a) 3^2

b) $\frac{1}{3^2}$

c) $-\frac{2}{3}$

d) $\frac{1}{3^{-2}}$

49. Find the values of the letters in following: **[1]**

$$\begin{array}{r} AB \\ \times\ 5 \\ \hline CAB \end{array}$$

a) A = 5, B = 5, C = 2

b) None of these

c) A = 5, B = 0, C = 2

d) A = 5, B = 0, C = 1

50. By which of the following number 225 is divisible? 2, 3, 4, and 6 **[1]**

a) 4

b) 3

c) 6

d) 2

Solution

SUBJECT- MATHEMATICS 041 - TEST - 05

Class 08 - Mathematics

1. **(b)** $\frac{-1}{4}, 0, \frac{1}{4}$
   Explanation: $\frac{-1}{4}, 0, \frac{1}{4}$
2. **(a)** $\frac{2}{3}$
   Explanation: $[\frac{5}{9} + (\frac{-5}{18})] + [(\frac{-7}{18}) + \frac{7}{9}]$
   $= [\frac{5\times2+(-5)\times1}{18}] + [\frac{-7\times1+2\times7}{18}]$
   $= [\frac{10-5}{18}] + [\frac{-7+14}{18}]$
   $= \frac{5}{18} + \frac{7}{18}$
   $= \frac{12}{18}$
   $= \frac{2}{3}$
3. **(c)** 1.5010010001..... And 1.601001000100001.....
   Explanation: $\sqrt{2}$ = 1.414....
   $\sqrt{3}$ = 1.732...
   So between 1.414... and 1.732... two irrational numbers are 1.5010010001.... and 1.601001000100001...
   As all other options contains irrational numbers which do not lie between 1.414 and 1.732
4. **(a)** $\frac{2}{3} - \frac{5}{4} = \frac{5}{4} - \frac{2}{3}$
   Explanation: $\frac{2}{3} - \frac{5}{4} = \frac{5}{4} - \frac{2}{3}$
5. **(d)** identity for addition of rational numbers
   Explanation: We know that, the sum of any rational number and zero (0) is the rational number itself.
   Now, x + 0 = 0 + x = x, which is a rational number, then 0 is called identity for addition of rational numbers.
6. **(b)** Rational numbers are closed under division
   Explanation: Rational numbers are not closed under division.
   As, 1 and 0 are the rational numbers but $\frac{1}{0}$ is not defined.
7. **(b)** $\frac{125}{512}$
   Explanation: $\left(\frac{64}{25}\right)^{-\frac{3}{2}}$
   $= \left(\frac{25}{64}\right)^{\frac{3}{2}}$
   $= \left(\frac{5}{8}\right)^{2\times\frac{3}{2}}$
   $= (\frac{5}{8})^3$
   $= \frac{125}{512}$
8. **(a)** $\frac{12}{13}$
   Explanation: The answer is $\frac{12}{13}$ as any number multiplied by 1 gives the same number as a product as 1 is the multiplicative identity of rational numbers.
9. **(a)** 36
   Explanation: Let the number be 10x + y.
   Now, x + y = 9
   or, x = 9 - y
   Also, if we interchanged the number then it is 10y + x.
   So, (10y + x) - (10x + y) = 27
   or, 9y - 9x = 27
   or, y - x = 3
   or, y - (9 - y) = 3
   or, 2y = 12

or, y = 6
Then x = 9 - 6 = 3
So, the number is = 36

10. **(d)** 48
Explanation: let the number of boys and girls = x
ratio = 7 : 5
boys =7x
girls = 5x
According to question,
7x = 5x + 8
By transposing,
7x - 5x = 8
2x = 8
x = $\frac{8}{2}$
x = 4
now the number of boys = 7x = 28
the number of girls = 5x = 20
total students = 28 + 20 = 48

11. **(c)** 5
Explanation: 3x = 15
Or, x = 5

12. **(a)** 2
Explanation: $\frac{3x-2}{4} - \frac{2x+3}{3} = \frac{2}{3} - x$
L.C.M on both sides
or, $\frac{(9x-6-8x-12)}{12}$ = $\frac{(2-3x)}{3}$
or, $\frac{(x-8)}{12}$ = $\frac{(2-3x)}{3}$
by cross-multiply
or, 3x - 54 = 24 - 36x
or, -54 - 24 = -36x - 3x
or, -78 = -39x
or, $\frac{-79}{-39}$ = x
or, 2 = x

13. **(d)** 2
Explanation: $\frac{m}{7} = \frac{2}{7}$
Cancelling 7 from the both sides
m = 2

14. **(b)** 2
Explanation: 3(5z - 7) -2(9z - 11) = 4(8z - 13) - 17
solve the brackets
15z - 21 - 18z + 22 = 32z - 52 - 17
-3z + 1 = 32z - 69
by transposing
-3z - 32z = -69 - 1
-35z = -70
z = 2

15. **(d)** Diagonals of a rhombus bisect each other at a right angle
Explanation: To construct a rhombus whose two diagonals are given draw a line segment equal to the length of one diagonal and then using the property that the diagonals of a rhombus perpendicularly bisect each other, draw a perpendicular bisector of that diagonal equal to the length of other diagonal. Join all four points.

16. **(b)** line segments
Explanation: A polygon is a plain figure that is bounded by a finite chain of straight line segments closing in a loop to form a closed circuit.

17. **(c)** 3
Explanation: As we know that, to define a quadrilateral uniquely, we require 5 measurements. So, to construct a quadrilateral whose two included angles are given, we will require 3 sides.

18. **(a)** 180^o
Explanation: As we know that the adjacent angles of a parallelogram are supplementry and in the given problem $\angle DAB$ and $\angle CDA$ are adjacent to each other. So, their sum will be 180^o .

19. **(b)** square
Explanation: A square is a type of a parallelogram in which all the sides are equal all the four angles are equal and each is of 90^o.

20. **(d)** 1
Explanation: As we know that all the four sides of a square are equal all the four angles are the right angle. So, to define a square only 1 measurement is sufficient and that is the length of its side.

21. **(d)** 361
Explanation: We have, $361 = (19)^2$
Hence, 19 is a odd number.

22. **(d)** 15
Explanation: We have, $\sqrt{176 + \sqrt{2401}}$
$= \sqrt{176 + \sqrt{7 \times 7 \times 7 \times 7}}$
$= \sqrt{176 + 49}$
$= \sqrt{225}$
$= 15$

23. **(d)** 41
Explanation: Total number of plants = 1681
$\Rightarrow$ Number of rows $\times$ Number of columns = 1681
(Since, number of rows=number of columns)
$(\text{number of rows})^2 = 1681$
Number of rows = $\sqrt{1681}$
Number of rows = 41

24. **(a)** 4
Explanation: The number of zeroes in the square of a number is given by 2m where m is the number of zeroes in the number which is to be squared.
Here, m = 2, so 2m = 2 $\times$ 2= 4 zeroes will be present in 700^2

25. **(a)** 1128
Explanation: 1128 = (2 $\times$ 2 $\times$ 2 $\times$ 3 $\times$ 4 $\times$ 7), is not perfect square
or 8 can not be unit digit of any squared number.

26. **(c)** -15625
Explanation: $(-25)^3 = (-25) \times (-25) \times (-25)$
= -15625 (The cube of a negative integer is negative)

27. **(d)** $(10b + a)^3$
Explanation: Ones digit = a
tens digit = b
Number = (10 $\times$ b) + a = (10b + a)
Now the cube of number = $(10b + a)^3$

28. **(b)** $\frac{8}{125}$
Explanation: $\sqrt[3]{\frac{x}{y}} = \frac{2}{5}$

Cubing both sides,
$\sqrt[3]{(\frac{x}{y})^3} = (\frac{2}{5})^3$
$\frac{x}{y} = \frac{8}{125}$

29. **(b)** Rs 2,400
Explanation: Shilpa spend = 75%
She saves = 100 - 75
25% = Rs 600
or, 100% = $(\frac{600\times100}{25})$
= Rs 2,,400

30. **(a)** Rs 38,640
Explanation: $A = P(1 - \frac{r}{100})^n$
We applied compound Interest formula as scooter depreciated then we take minus in formula
= ₹$42000(1 - \frac{8}{100})^1$
= ₹$\frac{42000\times23}{25}$
= Rs 38,640

31. **(b)** It is 12:1
Explanation: Rs 1 = 100 paise
Rs 6 = 600 paise
So, the ratio is,
600:50
= 12:1

32. **(d)** 8
Explanation: Since the rate of interest is calculated after every three months. Similarly, the time period for the amount in a year will 4 times.
If amount is taken for 2 yr, means 4 × 2 = 8 times charged in 2 yr.

33. **(d)** 5%
Explanation: The marked price of an article = ₹ 80
Selling price of the article = ₹ 76
We know that,
Selling price = Marked price - Discount
∴ Discount = Marked price - Selling price
Discount = ₹ 80 - ₹ 76 = ₹ 4
Discount % = $\frac{4}{80} \times 100 = \frac{40}{8} = 5\%$ $\left[\because \text{ discount } \% = \frac{\text{discount}}{\text{marked price}} \times 100\right]$

34. **(c)** Rs 19,950
Explanation: Price of T.V. =₹$21,000$
$A = P(1 - \frac{r}{100})^n$(Depreciation)
A(value after one year)=$21000(1 - \frac{5}{100})^1$
= $21,000(\frac{19}{20})$
= Rs 19,950

35. **(c)** ₹1056
Explanation: Given, marked price of an article = ₹1200
Discount % = 12%
∴ Discount = Discount % on marked price
= $\frac{12}{100} \times 1200 = 12 \times 12$ = ₹144
∵ Selling price = Marked price - Discount
∴ Selling price = ₹1200 - ₹144 = ₹1056

36. **(c)** Gain of 16.67% (Approx)
Explanation: Purchase price of T.V. = Rs 2,400
Repairs = Rs 600

Total Purchase Price = (2,400 + 600)
= Rs 3,000
Selling Price = Rs 3,500
Gain = 3,500 - 3,000
= Rs 500
Gain (%) = $\frac{500}{3000} \times 100$
= 16.67% (Approx)

37. **(b)** Rs 440
Explanation: List price = Rs 2,200
Discount = ₹$(\frac{2200 \times 20}{100})$
= Rs 440

38. **(d)** ₹ 1681
Explanation: $A = P\left[1 + \frac{r}{100}\right]^t$
compounded half yeary
t = 1 year $\times$ 2 = 2(half year)
r = 5% = $\frac{5}{2}$ = 2.5%
Now
A = $1600\left[1 + \frac{2.5}{100}\right]^2$
$= 1600 \times \frac{102.5\times}{100}\frac{102.5}{100}$
= $16 \times \frac{1025\times1025}{100\times100}$
= $\frac{16810000}{10000}$
= ₹1681

39. **(c)** F
Explanation: Formula is F + V - E = 2. It is called Euler Formula
where V = number of vertices, E = number of edges, F= number of faces.

40. **(a)** 
Explanation: According to the definition of a polyhedron, a solid is a polyhedron if it is made up of only polygonal-faces, the faces meet at edges with one line segment and the edges meeting at a point. The point is generally called as vertex.

41. **(a)** V = 4, F =6, E = 6
Explanation: We know that, Euler's formula for any polyhedron is F + V - E = 2
where, F = faces, V = vertices
and E = edges
For V = 4, F = 6 and E = 6
LHS = F +V - E
= 6 + 4 -6
= 1 0 - 6 = 4 $\neq$ RHS
Hence this can't be a polyhedron.

42. **(d)** 10
Explanation: The decagonal prism is formed by 10 square sides and two regular decagon base or cap.

43. **(a)** Sphere
Explanation: As we know that, a vertex is a meeting point of two or more edges. Since, a sphere has only one curved face, so it has no vertex and no edges.

44. **(c)** $(-9)^{-5}$
Explanation: We have, $(-9)^3 \div (-9)^8$
Using law of exponents, $a^m \div a^n = (a)^{m-n}$ [$\because$ a is non-zero integer]

$\therefore (-9)^3 \div (-9)^8 = (-9)^{3-8}$

$= (-9)^{-5}$

45. **(d)** 1

Explanation: Using law of exponents, $a^0 = 1$ [$\because$ a is non-zero integer]

$\therefore \quad \left(\frac{1}{10}\right)^0 = 1$

46. **(a)** $12^1 \times 33^3$

Explanation: $12^1 \times 33^1 \times 33^1 \times 33^1$

$= 12^1 \times 331 + 1 + 1$

$= 12^1 \times 33^3$

47. **(c)** 0.00003

Explanation: Multiplying numbers with negative exponents shift the decimal point to the left position.

So, 3×10^{-5} will shift the decimal point by 5 positions.

Hence the answer is 0.00003

48. **(b)** $\frac{1}{3^2}$

Explanation: Using law of exponents, $a^{-m} = \frac{1}{a^m}$ [$\because$ a is non-zero integer]

So, we can write 3^{-2} as $\frac{1}{3^2}$

49. **(c)** A = 5, B = 0, C = 2

Explanation: When 5 is multiplied with B it gives a number whose ones place is B again. So, B must be 5 or 0.

Let B = 5

First step: 5 × B = 5 × 5 = 25

2 will be carried forward. Therefore, (A × 5) + 2 = CA. This is possible for number A = 2 or 7.

The multiplication is as given below.

25 × 5 =125

75 × 5 = 375

Let B = 0

First step: 5 × B = 5

5 × 0 = 0

There will not be any carry in this case.

In the next step, 5 × A = CA

This can happen only when the value of A is 5 or 0.

However, A cannot be 0 as AB is two digit number. Therefore, the value of A is 5.

50 × 5 = 250

Therefore, the value of A, B and C are 5, 0 and 2 respectively.

50. **(b)** 3

Explanation: It's digit sum = 9. So, it is divisible by 3