

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

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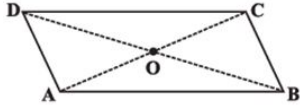
1. Three rational numbers lying between $-\frac{3}{4}$ and $\frac{1}{2}$ are [1]
 - a) $-\frac{5}{4}, 0, \frac{1}{4}$
 - b) $-\frac{1}{4}, 0, \frac{1}{4}$
 - c) $-\frac{1}{4}, \frac{1}{4}, \frac{3}{4}$
 - d) $-\frac{1}{2}, 0, \frac{3}{4}$
2. Find $\frac{5}{9} + (-\frac{5}{18}) + (-\frac{7}{18}) + \frac{7}{9}$ [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: $(\frac{64}{25})^{-\frac{3}{2}}$. [1]



- a) 64
c) 125
- b) $\frac{125}{512}$
d) 512
8. $1 \times \frac{12}{13} = \underline{\hspace{2cm}}$. [1]
a) $\frac{12}{13}$
c) 0
b) 1
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
c) 54
b) 45
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
c) 40
b) 0
d) 48
11. Solve: $3x = 15$ [1]
a) none of these
c) 5
b) 3
d) 4
12. Solve: $\frac{3x-2}{4} - \frac{2x+3}{3} = \frac{2}{3} - x$ [1]
a) 2
c) 4
b) 3
d) None of these
13. Solve: $\frac{m}{7} = \frac{2}{7}$ [1]
a) -1
c) 1
b) -2
d) 2
14. Solve: $3(5z - 7) - 2(9z - 11) = 4(8x - 13) - 17$ [1]
a) 4
c) 5
b) 2
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
c) Diagonals are congruent
b) Diagonals are bisect to each other
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
c) closed curves
b) line segments
d) curves
17. A quadrilateral can be constructed uniquely if its _____ sides and two included angles are given. [1]

- a) None of these
 c) 3
- b) 1
 d) 2

18. Given a parallelogram ABCD. $\angle DAB + \angle CDA = \dots\dots$ [1]



- a) 180°
 c) 90°
- b) 360°
 d) none of these

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

- a) trapezium
 c) kite
- b) square
 d) rectangle

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

- a) 3
 c) 4
- b) 2
 d) 1

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

- a) 144
 c) 256
- b) 400
 d) 361

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

- a) 17
 c) 16
- b) 14
 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
 c) 49
- b) 47
 d) 41

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

- a) 4
 c) 3
- b) 1
 d) 2

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

- a) 1128
 c) 361
- b) 1156
 d) 1681

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

- a) 15625
 c) -15625
- b) 50
 d) -15635



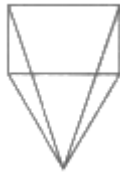
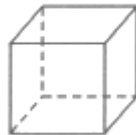
27. If a is ones digit and b is the tens digit of a two-digit number, then the cube of the number will be _____. [1]

- 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. $(\frac{1}{10})^0$ is equal to [1]
- a) 10
b) $(\frac{1}{10})$
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: $[\frac{5}{9} + (\frac{-5}{18})] + [(\frac{-7}{18}) + \frac{7}{9}]$

$$= [\frac{5 \times 2 + (-5) \times 1}{18}] + [\frac{-7 \times 1 + 2 \times 7}{18}]$$

$$= [\frac{10 - 5}{18}] + [\frac{-7 + 14}{18}]$$

$$= \frac{5}{18} + \frac{7}{18}$$

$$= \frac{12}{18}$$

$$= \frac{2}{3}$$

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: $(\frac{64}{25})^{-\frac{3}{2}}$

$$= (\frac{25}{64})^{\frac{3}{2}}$$

$$= (\frac{5}{8})^{2 \times \frac{3}{2}}$$

$$= (\frac{5}{8})^3$$

$$= \frac{125}{512}$$

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 $10x + y$.

$$\text{Now, } x + y = 9$$

$$\text{or, } x = 9 - y$$

Also, if we interchanged the number then it is $10y + x$.

$$\text{So, } (10y + x) - (10x + y) = 27$$

$$\text{or, } 9y - 9x = 27$$

$$\text{or, } y - x = 3$$

$$\text{or, } y - (9 - y) = 3$$

$$\text{or, } 2y = 12$$



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

$$\text{or, } \frac{(9x-6-8x-12)}{12} = \frac{(2-3x)}{3}$$

$$\text{or, } \frac{(x-8)}{12} = \frac{(2-3x)}{3}$$

by cross-multiply

$$\text{or, } 3x - 54 = 24 - 36x$$

$$\text{or, } -54 - 24 = -36x - 3x$$

$$\text{or, } -78 = -39x$$

$$\text{or, } \frac{-78}{-39} = x$$

$$\text{or, } 2 = x$$

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

$$\sqrt[3]{\left(\frac{x}{y}\right)^3} = \left(\frac{2}{5}\right)^3$$

$$\frac{x}{y} = \frac{8}{125}$$

29. **(b)** Rs 2,400

Explanation: Shilpa spend = 75%

She saves = 100 - 75

25% = Rs 600

$$\text{or, } 100\% = \left(\frac{600 \times 100}{25}\right)$$

= Rs 2,400

30. **(a)** Rs 38,640

Explanation: $A = P\left(1 - \frac{r}{100}\right)^n$

We applied compound Interest formula as scooter depreciated then we take minus in formula

$$= ₹42000\left(1 - \frac{8}{100}\right)^1$$

$$= ₹\frac{42000 \times 23}{25}$$

= 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 $4 \times 2 = 8$ 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

$$\text{Discount \%} = \frac{4}{80} \times 100 = \frac{40}{8} = 5\% \quad \left[\because \text{discount \%} = \frac{\text{discount}}{\text{marked price}} \times 100 \right]$$

34. **(c)** Rs 19,950

Explanation: Price of T.V. = ₹21,000

$A = P\left(1 - \frac{r}{100}\right)^n$ (Depreciation)

$$A(\text{value after one year}) = 21000\left(1 - \frac{5}{100}\right)^1$$

$$= 21,000\left(\frac{19}{20}\right)$$

= 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

$$\text{Total Purchase Price} = (2,400 + 600)$$

$$= \text{Rs } 3,000$$

$$\text{Selling Price} = \text{Rs } 3,500$$

$$\text{Gain} = 3,500 - 3,000$$

$$= \text{Rs } 500$$

$$\text{Gain (\%)} = \frac{500}{3000} \times 100$$

$$= 16.67\% \text{ (Approx)}$$

37. **(b)** Rs 440

Explanation: List price = Rs 2,200

$$\text{Discount} = ₹\left(\frac{2200 \times 20}{100}\right)$$

$$= \text{Rs } 440$$

38. **(d)** ₹ 1681

Explanation: $A = P\left[1 + \frac{r}{100}\right]^t$

compounded half yearly

$$t = 1 \text{ year} \times 2 = 2 \text{ (half year)}$$

$$r = 5\% = \frac{5}{2} = 2.5\%$$

Now

$$A = 1600 \left[1 + \frac{2.5}{100}\right]^2$$

$$= 1600 \times \frac{102.5 \times 102.5}{100}$$

$$= 16 \times \frac{1025 \times 1025}{100 \times 100}$$

$$= \frac{16810000}{10000}$$

$$= ₹1681$$

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 $E = 6$

$$\text{LHS} = F + V - E$$

$$= 6 + 4 - 6$$

$$= 10 - 6 = 4 \neq \text{RHS}$$

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, $a^m \div a^n = (a)^{m-n}$ [\cdot : a is non-zero integer]

$$\begin{aligned} \therefore (-9)^3 \div (-9)^8 &= (-9)^{3-8} \\ &= (-9)^{-5} \end{aligned}$$

45. (d) 1

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

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

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: $5 \times B = 5 \times 5 = 25$

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

The multiplication is as given below.

$$25 \times 5 = 125$$

$$75 \times 5 = 375$$

Let B = 0

First step: $5 \times B = 5$

$$5 \times 0 = 0$$

There will not be any carry in this case.

In the next step, $5 \times A = CA$

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.

$$50 \times 5 = 250$$

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