CBSE Sample Question Paper Term 1

Class – VIII (Session : 2021 - 22)

Class 08 - Mathematics
Subject- Mathematics041 - Test - 04

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	5 (1)	**5 (5)**
Linear Equations in One Variable	5 (1)	**5 (5)**
Understanding Quadrilaterals	5 (1)	**5 (5)**
Data Handling	5 (1)	**5 (5)**
Squares and Square Roots	5 (1)	**5 (5)**
Cubes and Cube Roots	5 (1)	**5 (5)**
Comparing Quantities	8 (1)	**8 (8)**
Exponents and Powers	5 (1)	**5 (5)**
Playing with Numbers	7 (1)	**7 (7)**
Total	**50 (50)**	**50 (50)**

CBSE Sample Question Paper Term 1

Class – VIII (Session : 2021 - 22)

SUBJECT- MATHEMATICS041 - TEST - 04

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. The numerical expression $\frac{3}{8} + (\frac{-5}{7}) = \frac{-19}{56}$ shows that **[1]**

   a) addition of rational numbers is not commutative

   b) rational numbers are not closed under addition

   c) rational numbers are closed under multiplication

   d) rational numbers are closed under addition

2. Find: $\frac{-4}{5} \times \frac{3}{7} \times \frac{15}{16} \times \left(\frac{-14}{9}\right)$ **[1]**

   a) 2

   b) 0

   c) 1

   d) $\frac{1}{2}$

3. Find the decimal representation of $\frac{8}{3}$. **[1]**

   a) 2

   b) $2.\overline{6}$

   c) 3.7

   d) 2.6

4. Find $\frac{3}{5} + \left(-\frac{5}{12}\right) + \left(-\frac{7}{15}\right) + \frac{5}{20}$ **[1]**

   a) $\frac{-1}{30}$

   b) -1

   c) 30

   d) $\frac{1}{30}$

5. The reciprocal of $\frac{-3}{8} \times \left(\frac{-7}{13}\right)$ is: **[1]**

   a) $\frac{21}{104}$

   b) $\frac{104}{21}$

   c) $\frac{-21}{104}$

   d) $\frac{-104}{21}$

6. The sum of three consecutive multiples of 7 is 357. Find the smallest multiple. **[1]**

   a) 116

   b) 119

   c) 126

   d) 112

7. Solve: 8x + 4 = 3(x - 1) + 7 **[1]**

   a) 1

   b) 2

   c) 0

   d) 9

8. The denominator of a rational number is greater than its numerator by 8. If the numerator is increased by 17 and the denominator is decreased by 1, the number obtained is $\frac{3}{2}$. Find the rational number. **[1]**

a) 13
b) $\frac{13}{21}$
c) 21
d) $\frac{21}{13}$

9. Half of a herd of deer are grazing in the field and three-fourths of the remaining are playing nearby. The rest 9 are drinking water from the pond. Find the number of deer in the herd. **[1]**

a) 36
b) 72
c) 24
d) 12

10. The perimeter of a rectangular swimming pool is 154m. Its length is 2m more than twice its breadth. What are the length and breadth of the pool? **[1]**

a) 52m, 25m
b) 41m, 14m
c) 36m, 63m
d) None of these

11. Find the number of sides of a regular polygon whose each exterior angle has a measure of 45^o. **[1]**

a) 4
b) 3
c) 6
d) 8

12. The sum of the measures of the three angles of a triangle is _____. **[1]**

a) 210^o
b) 180^o
c) 90^o
d) 360^o

13. The number of diagonals in a polygon of n sides is **[1]**

a) n (n - 3)
b) $\frac{n(n-1)}{2}$
c) $\frac{n(n-3)}{2}$
d) $\frac{n(n-2)}{2}$

14. ABCD is a quadrilateral in which AB = 5 cm, CD = 8 cm and the sum of angle A and angle D is 180^o. What is the name of this quadrilateral? **[1]**

a) Parallelogram
b) Can not be determined
c) Rhombus
d) Trapezium

15. In a square ABCD, the diagonals meet at point O. The $\triangle$AOB is **[1]**

a) scalene right triangle
b) isosceles right triangle
c) isosceles triangle but not right triangle
d) equilateral triangle

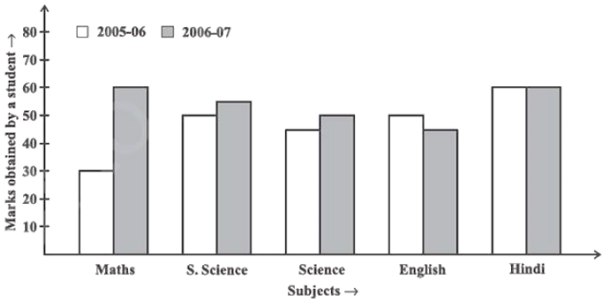
16. A coin is tossed two times. The number of possible outcomes is **[1]**

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

17. _____ can be grouped and presented systematically through grouped frequency distribution. **[1]**

a) Raw data
b) Interval
c) Observation
d) None of these

18. In which subject is the performance same as previous year? **[1]**



a) English
b) Maths
c) Science
d) Hindi

19. Tally marks are used to find: **[1]**

a) upper limit
b) frequency
c) class intervals
d) range

20. The following pie chart shows the times spent by a child during a day. What proportion of the sector for hours is spent in school? **[1]**

a) $\frac{1}{2}$
b) None of these
c) $\frac{1}{3}$
d) $\frac{1}{4}$

21. The square root of 2025 is **[1]**

a) 48
b) 46
c) 47
d) 45

22. Which of the following would end with digit 6? **[1]**

a) 444^2
b) 342^2
c) 433^2
d) 457^2

23. Which of the given number is not a perfect square number? **[1]**

a) 1024
b) 484
c) 456
d) 900

24. Find the perfect square number between 40 and 50. **[1]**

a) 46
b) 49
c) 48
d) 47

25. What will be the number of zeros in the square of 30? **[1]**

a) 5 b) 1

c) 2 d) 3

26. The cube of 43 is _____. **[1]**

a) 15625 b) 50653

c) 9261 d) 79507

27. Find the cube root of -132651. **[1]**

a) 51 b) -51

c) 15 d) 41

28. What is the cube of double of a? **[1]**

a) $8a^3$ b) $4a^2$

c) $16a^3$ d) 2a

29. If $(9261)^{1/3}$ = 2p + 3, then the value of p is **[1]**

a) 9 b) 7

c) 8 d) 5

30. If a is a non-zero number, then a $\times$ a $\times$ a = a^3 is called _____ of a. **[1]**

a) square b) cube root

c) square root d) cube

31. If $\frac{7}{3}\%$ of a number is 42, then the number is **[1]**

a) 800 b) 1800

c) 9800 d) 180

32. An item marked at Rs 720 is sold for Rs 600. What is the discount amount? **[1]**

a) Rs 130 b) Rs 140

c) None of these d) Rs 120

33. Amit bought a second-hand washing machine for Rs 9,500, then spent Rs 500 on its repairs and sold it for Rs 10,600. Find his gain or loss. **[1]**

a) Loss of Rs 600 b) Gain of Rs 400

c) Gain of Rs 600 d) None of these

34. Avinash bought an electric iron for ₹ 900 and sold it at a gain of 10%. He sold another electric iron at 5% loss which was bought at ₹1200. On the transaction, he has a - **[1]**

a) loss of ₹75 b) loss of ₹30

c) profit of ₹75 d) profit of ₹30

35. Find the ratio of 5 km to 10 m. **[1]**

a) It is 1:500 b) It is 20:1

c) It is 500:1 d) It is 1:20

36. A shopkeeper purchased 200 bulbs for Rs 10 each. However, 5 bulbs were fused and had to be thrown away. The remaining were sold at Rs 12 each. Find the gain or loss %. **[1]**

a) Gain of 25%
b) Gain of 17%
c) Loss of 17%
d) Loss of 15%

37. Find C.I .on Rs 16,000 for 2 years at 15% per annum compounded annually. **[1]**

a) Rs 5,160
b) None of these
c) Rs 5,600
d) Rs 6,000

38. A jacket was sold for ₹1120 after allowing a discount of 20%. The marked price of the jacket is **[1]**

a) ₹866.66
b) ₹1400
c) ₹1440
d) ₹960

39. The human body has about 100 billion cells. This number can be written in exponential form as **[1]**

a) 10^{9}
b) 10^{-11}
c) 10^{-9}
d) 10^{11}

40. The usual form for 2.03×10^{-5} is **[1]**

a) 0.0000203
b) 203000
c) 0.203
d) 0.00203

41. The multiplicative inverse of 10^{-100} is **[1]**

a) 10^{-100}
b) 10
c) 100
d) 10^{100}

42. Find the value of the expression $4 \times (-x)^2$, for x = 5. **[1]**

a) 50
b) 4
c) 100
d) 25

43. The repeated factor in an exponential expression is called _____. **[1]**

a) power
b) base
c) exponent
d) None of these

44. If $6A \times B = A8B$, then the value of A – B is **[1]**

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

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

$$\begin{array}{r} 12A \\ +6AB \\ \hline A09 \end{array}$$

a) A = 8, B = 1
b) None of these
c) A = 1, B = 1
d) A = 8, B = 8

46. Let abc be a three-digit number. Then abc - cba is not divisible by **[1]**

a) 9 b) 11

c) 33 d) 18

47. Find Q in the addition. **[1]**

```
  3 1 Q
+ 1 Q 3
-------
  5 0 1
```

a) 8 b) 6

c) 5 d) 7

48. Find the value of A & B from the following? 3A + 25 = B2 **[1]**

a) A = 6, B = 6 b) A = 7, B = 7

c) A = 7, B = 6 d) A = 6, B = 7

49. If 5A + 25 is equal to B2, then the value of A + B is **[1]**

a) 8 b) 15

c) 7 d) 10

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

```
  A B
  X 6
-----
B B B
```

a) A = 4, B = 7 b) A = 7, B = 7

c) A = 4, B = 4 d) A = 7, B = 4

Solution

SUBJECT- MATHEMATICS041 - TEST - 04

Class 08 - Mathematics

1. **(d)** rational numbers are closed under addition
   Explanation: In the given expression the addition of two rational numbers is given and the result obtained is also a rational number.

2. **(d)** $\frac{1}{2}$
   Explanation: $\frac{-4}{5} \times \frac{3}{7} \times \frac{15}{16} \times (\frac{-14}{9})$
   $= \frac{-12}{35} \times \frac{-210}{144}$
   $= \frac{6}{12}$
   $= \frac{1}{2}$

3. **(b)** $2.\bar{6}$
   Explanation: $\frac{8}{3}$ = 2.666666....
   = $2.\bar{6}$

4. **(a)** $\frac{-1}{30}$
   Explanation: $[\frac{3}{5} + (\frac{-5}{12})] + [(\frac{-7}{15}) + \frac{5}{20}]$
   $= [\frac{3\times12+(-5)\times5}{60}] + [\frac{-7\times4+3\times5}{60}]$
   $= [\frac{36-25}{60}] + [\frac{-28+15}{60}]$
   $= \frac{11}{60} + (\frac{-13}{60})$
   $= \frac{11-13}{60}$
   $= \frac{-2}{60}$
   $= \frac{-1}{30}$

5. **(b)** $\frac{104}{21}$
   Explanation: Given number is $\frac{-3}{8} \times \left(\frac{-7}{13}\right)$
   The product of $\frac{-3}{8} \times \left(\frac{-7}{13}\right) = \frac{21}{104}$
   Hence, the multiplicative inverse of $\frac{21}{104}$ is $\frac{104}{21}$

6. **(d)** 112
   Explanation: Let the multiples be 7x, 7(x + 1) and 7(x + 2)
   Then,
   7x + 7(x + 1) +7(x + 2) = 357
   7x + 7x + 7 + 7x + 14 = 357
   21x + 21 = 357
   21x = 357 - 21
   21x = 336
   x = $\frac{336}{21}$
   x = 16
   Since the smallest multiple is 7x, the answer will be:
   $7 \times x$
   $= 7 \times 16$
   = 112

7. **(c)** 0
   Explanation: 8x + 4 = 3(x - 1) + 7
   or, 8x + 4 = 3x - 3 + 7 (solve bracket first)
   or, 8x + 4 = 3x + 4

By transposing both sides
or, 8x - 3x = 4 - 4
or, 5x = 0
or, x = 0

8. **(b)** $\frac{13}{21}$
Explanation: Let the number of numerator be = x
denominator = x + 8
According to the given condition
$\frac{x+17}{x+8}$ - 1 = $\frac{3}{2}$
$\frac{x+17}{x+7}$ = $\frac{3}{2}$
by crossmultiply,we get,
2(x + 17) = 3(x + 7)
2x + 34 = 3x + 21
34 - 21 = 3x - 2x
x= 13
Numerator = x = 13
Denominator = x + 8 = 21
Fraction = $\frac{13}{21}$

9. **(b)** 72
Explanation: Let the number of deer in herd be = x
number of deer grazing in field = $\frac{x}{2}$
number of deer left = x - $\frac{x}{2}$ = $\frac{x}{2}$
number of deer playing nearby = $\frac{3}{4}$ of $\frac{x}{2}$ = $\frac{3x}{8}$
Number of deer drinking water from pond = 9
Now according to question,
$\frac{x}{2}$ + $\frac{3x}{8}$ + 9 = x
by L.C.M
or, (4x + 3x + 72) = x
or, 7x + 72 = 8x
or, 72 = 8x - 7x
or, 72 = x
Number of deer = 72

10. **(a)** 52m, 25m
Explanation: Let the breadth be = x
now according to question length = 2x + 2
perimeter of rectangle = 154m
perimeter of rectangle = 2(l + b)
or, 154 = 2(x + 2x + 2)
or, $\frac{154}{2}$ = 3x + 2
by transposing
or, 77 - 2 = 3x
or, $\frac{75}{3}$ = x
or, x = 25
Now, breadth = 25m
length = 2x + 2 = 50 + 2 = 52m

11. **(d)** 8
Explanation: The measure of each exterior angle of a regular polygon of n-sides = $\frac{360}{n}$
Therefore, $\frac{360}{n}$ = 45
so, 45n = 360

n = 8
the regular polygon has 8 sides

12. **(b)** 180^o
Explanation: Construction: Draw AC || line l
Since ∠a, ∠b, and ∠c make a straight line l,
∴ ∠a + ∠b + ∠c = 180^o (Angles on one side of a straight line = 180^o)
∵ AC || line l
∴ Alternate interior angles are equal, ∠a = ∠x and ∠b = ∠y
Therefore, ∠x + ∠y + ∠c = 180^o

13. **(c)** $\frac{n(n-3)}{2}$
Explanation: We know that the number of diagonals in a polygon of n sides = $\frac{n(n-3)}{2}$

14. **(d)** Trapezium
Explanation: We have given that $\angle A + \angle D = 180$
Therefore, quadrilateral must be a Trapezium

15. **(b)** isosceles right triangle
Explanation: We know that diagonal of a square bisect each other at 90^0.
Therefore, △AOB is an isosceles right triangle.

16. **(b)** 4
Explanation: When a coin is tossed two times the possible outcomes are
HH – Two heads
HT – First head and second tail
TH – First tail and second tail
TT – Two tails
Therefore,
The sample space is {HH, HT, TH, TT} = 4
Hence, the number of possible outcomes is 4.

17. **(a)** Raw data
Explanation: Raw data is unorganised or ungrouped data. So to present it systematically, it can be grouped.

18. **(d)** Hindi
Explanation: In hindi there is no change in the performance.

19. **(b)** frequency
Explanation: Tally marks are used to find the frequency of the observations.

20. **(d)** $\frac{1}{4}$
Explanation: total hours = 24
hours spent in school = 6
proportion of the sector for hours is spent in sleeping = $\frac{6}{24} = \frac{1}{4}$

21. **(d)** 45
Explanation: $\sqrt{2025}$ = 5 × 5 × 9 × 9
= 5 × 9
= 45

22. **(a)** 444^2
Explanation: The answer is 444^2 as here the unit's digit is 4 and 4^2 = 16 whose unit's digit is 6.So, 444^2 would end with digit 6

23. **(c)** 456
Explanation: 484 = 22^2, 900 = 30^2, 1024 = 32^2. So, 456 is not a perfect square.

24. **(b)** 49
Explanation: The answer is 49, it is the square of 7 and the next square number is 64 which does not lie

between 40 and 50.

25. **(c)** 2
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 = 1, so 2m = 2 × 1 = 2 zeroes will be present in 30^2.

26. **(d)** 79507
Explanation: $(43)^3$ = 43 × 43 × 43
= 79507

27. **(b)** -51
Explanation: -132651 = (3) × (3) × (3) × (-17) × (-17) × (-17)
$\sqrt[3]{-132651} = \sqrt[3]{3^{\,3} \times (-17)^{\,3}}$
$\sqrt[3]{-132651}$ = 3 × (-17)
$\sqrt[3]{-132651}$ = -51

28. **(a)** $8a^3$
Explanation: The double of a = 2a
The cube of 2a = 2a × 2a × 2a
= $8a^3$

29. **(a)** 9
Explanation: $(9261)^{1/3}$ = 2p + 3
$\sqrt[3]{9261}$ = 2p + 3
21 = 2p + 3
21 - 3 = 2p
18 = 2p
$\frac{18}{2}$ = p
9 = p

30. **(d)** cube
Explanation: The answer is cube. If any non-zero number is multiplied three times than the number obtained is called cube of the given number.

31. **(b)** 1800
Explanation: We have $\frac{7}{3}\%$ of a number = 42
then the number = $\frac{42}{\frac{7}{3}} \times 100$
= $\frac{42}{7} \times 3 \times 100$
= 1800

32. **(d)** Rs 120
Explanation: Discount = 720 - 600 (marked price - sale price)
= Rs 120

33. **(c)** Gain of Rs 600
Explanation: Purchase price = Rs. 9,500
Spent on repairs = Rs 500
Total purchase price = Rs 10,000
Selling price = 10,600 - 10,000
Gain = Rs 600

34. **(d)** profit of ₹30
Explanation: Avinash bought an electric iron = ₹900
He sold it, at 10% profit.
So, selling price of the electric iron = $\frac{10}{100} \times 900 + 900$
= 90 + 900 = ₹990
He also sold another electric iron at 5% loss.
Cost price of another electric iron = ₹1200

So, selling price of the electric iron = 1200 - $\frac{5}{100} \times 1200$
= 1200 - 60 = ₹1140
Total amount paid by Avinash for purchasing electric irons = ₹ 900 + ₹1200 = ₹2100
Total received amount = ₹ 990 + ₹1140 = ₹2130
So, his profit = ₹2130 - ₹2100 = ₹30 in transaction.
Hence, profit of ₹30 is correct.

35. **(c)** It is 500:1
Explanation: 1 km = 1000 m
5 km = 5000 m
So, the ratio is,
5000:10
= 500:1

36. **(b)** Gain of 17%
Explanation: Total Purchase Price of Bulbs = 200 $\times$ 10
= Rs.2000
5 bulbs are fused so 195 bulbs remain to sell
selling price Rs. 12/- each
Total selling price 195 $\times$ 12=Rs. 2340/-
Total gain = 2340 - 2000
= Rs.340
Gain %=$\frac{gain \times 100}{purchase}$
=$\frac{340 \times 100}{2000}$
= 17%

37. **(a)** Rs 5,160
Explanation: C.I. = $P(1 + \frac{r}{100})^n - P$
= $16,000(1 + \frac{15}{100})^2 - 16,000$
= $16,000(\frac{23}{20})^2 - 16,000$
= 21,160 - 16,000
= Rs 5,160

38. **(b)** ₹1400
Explanation: Let the marked price of the jacket be ₹ x.
Discount % on marked price = 20%
Selling price of jacket = ₹ 1120
Then, $1120 = x - x \times \frac{20}{100}$
$\Rightarrow \quad 1120 = x - \frac{x}{5}$
$\Rightarrow \quad 1120 = \frac{4x}{5}$
$\Rightarrow \quad x = \frac{1120 \times 5}{4} = 280 \times 5$ = ₹ 1400
So, marked price of the jacket is ₹ 1400.

39. **(d)** 10^{11}
Explanation: The human body has about 100 billion cells = 10^{11} cells

40. **(a)** 0.0000203
Explanation: Given, 2.03 $\times$ 10^{-5} = 0.0000203 [$\because$ placing decimal five-digit towards left of original position]

41. **(d)** 10^{100}
Explanation: We have,
let a be the multiplicative inverse of 10^{-100}.
So, a $\times$ b = 1
$\therefore$ a $\times$ 10^{-100} = 1

$\Rightarrow a = \frac{1}{10^{-100}}$

$\Rightarrow a = 10^{100} \left[\because a^{-m} = \frac{1}{a^m}\right]$

42. **(c)** 100

Explanation: For x = 5

$4 \times (-x)^2$

$4 \times (-5)^2$

$4 \times (25)$

100

43. **(b)** base

Explanation: In an exponent, the base is raised to the power as r^p where r is a base and p is exponent or power.

44. **(a)** -2

Explanation: 6A $\times$ B = A8B

A$\times$B = B and 6$\times$B = A8

Therefore, A = 1 and B = 3

61$\times$3 = 183

Hence, A - B = 1 - 3 = - 2

45. **(a)** A = 8, B = 1

Explanation: When A is added to B, it gives 9 that is a number whose ones place is 9.Sum can be 9 only as summation of two single digits cannot be 19. So no carry generated.

In the next step, A + 2 = 0

It is possible if A = 8.

Therefore, 2 + 8 = 10 and 1 will be carried forward for the next step.

1 + 1 + 6 = 8. Therefore, value of A = 8.

When A is added to B, it gives 9.

A + B = 9

8 + B = 9

Therefore, value of B = 1

$$\begin{array}{r} 128 \\ +681 \\ \hline 809 \end{array}$$

Thus value of A and B is 8 and 1 respectively.

46. **(d)** 18

Explanation: Given, abc is a three-digit number.

Then, abc = 100a + 10b + c

and cba = 100c + 10b + a

abc - eba = (100a + 10b + c) - (100c + 10b + a)

= 100a - a + 10b - 10b + c -100

= 99a - 99c = 99 (a - c)

= abc - cba is divisible by 99.

$\Rightarrow$ abc - cba is divisible by 9, 11, 33, but it is not divisible by 18.

47. **(a)** 8

Explanation: The addition of Q and 3 is giving 1i.e, a number who's ones digit is 1 which is possible if Q = 8. Now 8 + 3 = 11. Therefore, 1 + 1 + Q = 0 i. e, a number whose ones digit is 0 whicheans the number should be 10. So, 1 + 1 + Q = 10. Therefore, the value of Q = 8.

48. **(c)** A = 7, B = 6

Explanation: Here, A = 5 + 2 = 7

As 7 + 5 = 12. So, 1 will be carried over.

Now, 1 + 3 + 2 = B

B = 6
So, A = 7 and B = 6

49. **(b)** 15
Explanation: If 5A + 25 = B2
here A + 5 = 2 i.e. two digit number. so, A = 7 and 1 carrya
57 + 25 = 82 so, B = 8
hence A + B = 7 + 8
= 15

50. **(d)** A = 7, B = 4
Explanation: When 6 is multiplied with B, it gives a number whose ones place is B. It is possible only if B = 0, 2, 4, 6 or 8.
B = 0;
The product will be 0 in this case so it is not possible.
B = 2;
B $\times$ 6 = 12 and 1 will be carried forward for the next step.
6A + 1 = BB = 22. Then integer value of A is not possible.
B = 6;
B $\times$ 6 = 36 and 3 will be carried forward for the next step.
6A + 3 = BB = 66. Then integer value of A is not possible.
B = 8;
B $\times$ 6 = 48 and 4 will be carried forward for the next step.
6A + 4 = BB = 88.
6A = 84.
A = 14
But A is single digit number.
Then value of A is not possible.
B = 4;
B $\times$ 6 = 24 and 2 will be carried forward for the next step.
6A + 2 = BB = 44.
6A = 42.
A = 7
The multiplication is given below
74 $\times$ 6 = 444
Thus integer value of A and B is 7 and 4 respectively.