CBSE Sample Question Paper Term 1

Class – VIII (Session : 2021 - 22)

Class 08 - Mathematics
Subject- Mathematics041 - Test - 03

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	8 (1)	**8 (8)**
Understanding Quadrilaterals	8 (1)	**8 (8)**
Data Handling	7 (1)	**7 (7)**
Squares and Square Roots	3 (1)	**3 (3)**
Cubes and Cube Roots	3 (1)	**3 (3)**
Exponents and Powers	7 (1)	**7 (7)**
Playing with Numbers	6 (1)	**6 (6)**
Total	**50 (50)**	**50 (50)**

CBSE Sample Question Paper Term 1

Class – VIII (Session : 2021 - 22)

SUBJECT- MATHEMATICS041 - TEST - 03

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. Find the value of $\frac{a^{-1}}{a^{-1}+b^{-1}} + \frac{a^{-1}}{a^{-1}-b^{-1}}$ **[1]**

   a) $\frac{2b^2}{b^2-a^2}$ b) $\frac{2b^2}{b^2+a^2}$

   c) $\frac{2ab}{b^2-a^2}$ d) $\frac{2a^2}{b^2-a^2}$

2. Tell what property allows you to compute $\frac{1}{3} \times \left(6 \times \frac{4}{3}\right) = \left(\frac{1}{3} \times 6\right) \times \frac{4}{3}$ **[1]**

   a) Associative property of multiplication b) none of these

   c) Associative property of addition d) Commutative property of multiplication

3. Write the additive inverse of $\frac{13}{17}$. **[1]**

   a) $\frac{13}{17}$ b) $-\frac{13}{17}$

   c) 0 d) 1

4. The multiplicative inverse of $-1\frac{1}{7}$ is **[1]**

   a) $\frac{8}{7}$ b) $\frac{7}{-8}$

   c) $\frac{7}{8}$ d) $\frac{-8}{7}$

5. Which of the following is an example of the distributive property of multiplication over addition to rational numbers? **[1]**

   a) $-\frac{1}{4} \times \left\{\frac{2}{3} + \left(\frac{-4}{7}\right)\right\} = \left[-\frac{1}{4} \times \frac{2}{3}\right] + \left[-\frac{1}{4} \times \frac{-4}{7}\right]$ b) $-\frac{1}{4} \times \left\{\frac{2}{3} + \left(\frac{-4}{7}\right)\right\} = \left\{\frac{2}{3} + \left(\frac{-4}{7}\right)\right\} - \frac{1}{4}$

   c) $-\frac{1}{4} \times \left\{\frac{2}{3} + \left(\frac{-4}{7}\right)\right\} = \frac{2}{3} + \left(-\frac{1}{4}\right) \times \frac{-4}{7}$ d) $-\frac{1}{4} \times \left\{\frac{2}{3} + \left(\frac{-4}{7}\right)\right\} = \left[\frac{1}{4} \times \frac{2}{3}\right] - \left(\frac{-4}{7}\right)$

6. One (1) is: **[1]**

   a) the identity for the subtraction of rational numbers b) the identity for division of rational numbers

   c) the identity for the addition of rational numbers d) the identity for multiplication of rational numbers

7. If a = 2 and b = 3, then value of $\left(\frac{1}{a}+\frac{1}{b}\right)^{a}$. **[1]**

a) $\frac{75}{26}$ b) $\frac{24}{26}$

c) $\frac{25}{36}$ d) $\frac{25}{26}$

8. If $\frac{1}{x}=\frac{x^2}{27}$, then x is _____ number. **[1]**

a) none of these b) irrational

c) negative d) rational

9. The present age of Sahil's mother is three times the present age of Sahil. After 5 years their ages will add to 66 years. Find their present ages. **[1]**

a) 14, 46 years b) 28, 56 years

c) $28, 42$ years d) 14, 42 years

10. Solve: $\frac{x}{2}-\frac{1}{5}=\frac{x}{3}+\frac{1}{4}$ **[1]**

a) 27 b) 10

c) None of these d) $\frac{27}{10}$

11. The sum of three consecutive multiples of 8 is 888. Find multiples. **[1]**

a) None of these b) 288, 296 and 304

c) 288, 300 and 304 d) 288, 296 and 310

12. Solve: $\frac{2x}{3}+1=\frac{7x}{15}+3$ **[1]**

a) 6 b) 5

c) 3 d) 10

13. Find the solution of 2x - 3 = 7 **[1]**

a) 3 b) 5

c) none of these d) 4

14. Solve: $\frac{n}{2}-\frac{3n}{4}+\frac{5n}{6}$ = 21 **[1]**

a) $\frac{24}{26}$ b) 36

c) $\frac{25}{26}$ d) 25

15. The base of an isosceles triangle is $\frac{4}{3}$cm. The perimeter of the triangle is $4\frac{2}{15}$ cm. What is the length of either of the remaining equal sides? **[1]**

a) $\frac{2}{5}cm$ b) 1cm

c) None of these d) $1\frac{2}{5}cm$

16. Solve: $a-\frac{a-1}{2}=1-\frac{a-2}{3}$ **[1]**

a) None of these b) 5

c) 7 d) $\frac{7}{5}$

17. Find the number of sides of a regular polygon whose each exterior angle has a measure of 40^{o}. **[1]**

a) 6 b) 7

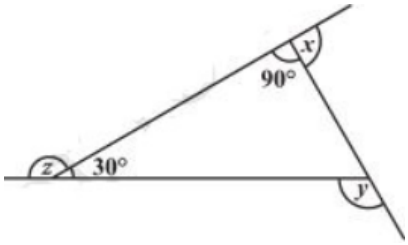
c) 8 d) 9

18. A rectangle is a parallelogram in which every angle is a _____ angle. **[1]**

a) right b) obtuse

c) acute d) None of these

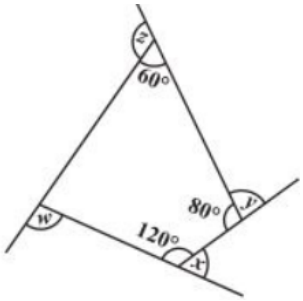
19. Find x + y + z. **[1]**



a) 360° b) none of these

c) 90° d) 180°

20. Find x + y + z + w **[1]**



a) 360° b) 90°

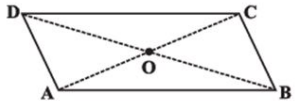
c) 45° d) 180°

21. How many vertices are present in a heptagon? **[1]**

a) None of these b) 8

c) 7 d) 6

22. Given a parallelogram ABCD. AD = ... **[1]**



a) AB b) AC

c) BC d) CD

23. The sum of angles of a concave quadrilateral is **[1]**

a) equal to 360^o b) twice of 360^o

c) more than 360^o d) less than 360^o

24. The _____of a rhombus are perpendicular bisectors of one another. **[1]**

a) angles b) sides

c) diagonals d) vertices

25. Numbers 1 to 20 are written on twenty separate slips (one number on one slip) kept in a box and mixed well. One slip is chosen from the box without looking into it. What is the **[1]**

probability of getting a 2-digit number?

a) None of these
b) $\frac{1}{5}$
c) $\frac{1}{10}$
d) $\frac{11}{20}$

26. When a die is thrown, what are the six possible outcomes? **[1]**

a) 1, 2, 3, 4, 5, 6
b) T, H
c) 0, 1, 2, 3, 4, 5, 6
d) None of these

27. Upper limit of class interval 75-85 is: **[1]**

a) 10
b) 85
c) 75
d) -10

28. What is the probability of getting a number through 6 numbers? **[1]**

a) None of these
b) $\frac{1}{2}$
c) 1
d) 0

29. The following pie chart represents the distribution of proteins in parts of human body. **[1]**

What is the ratio of the distribution of proteins in the muscles to that of proteins in the bones?

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

30. The colour of refrigerators preferred by people living in a locality are shown by the following pictograph.How many people choose red colour? **[1]**

colour	Number of people - 10 people
Blue	
Green	
Red	
White	

a) 20
b) 30
c) 40
d) 10

31. A display of information using _____ of uniform width, their heights being proportional to the respective values. **[1]**

a) histograms
b) None of these
c) angles
d) bars

32. Find the perfect square number between 190 and 200. **[1]**

a) 196 b) 195

c) 198 d) 194

33. Which of the following will have 4 at the units place? **[1]**

a) 27^2 b) 35^2

c) 14^2 d) 62^2

34. Without doing any calculation, find the numbers which are surely perfect squares. **[1]**

A. 625

B. 347

C. 658

D. 233

a) B b) D

c) C d) A

35. If $\sqrt[3]{\frac{x}{y}} = \frac{3}{4}$, then $\frac{x}{y}$ = _____. **[1]**

a) 64 b) $\frac{64}{27}$

c) 27 d) $\frac{27}{64}$

36. Find the prime factorisation of 1728. **[1]**

a) $2^3 \times 2^3 \times 3^3$ b) None of these

c) $2^3 \times 2^3 \times 5^3$ d) $2^3 \times 3^3 \times 3^3$

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

a) 15625 b) 50

c) -15625 d) -15635

38. Find a so that $(-5)^{a+3} \times (-5)^2 = (-5)^6$ **[1]**

a) 2 b) 1

c) 4 d) 3

39. For a non-zero rational number p, $p^{13} \div p^8$ is equal to **[1]**

a) p^{-19} b) p^{-5}

c) p^5 d) p^{21}

40. The standard form for 234000000 is **[1]**

a) 0.234×10^{-9} b) 2.34×10^8

c) 2.34×10^{-8} d) 0.234×10^9

41. Evaluate the exponential expression $(-y)^4 \times (-y)^5$, for y = 1. **[1]**

a) 9 b) 2

c) 1 d) -1

42. The value of $(7^{-1} - 8^{-1})^{-1} - (3^{-1} - 4^{-1})^{-1}$ is **[1]**

a) 68 b) 56

c) 12 d) 44

43. For any two non-zero rational numbers x and y, $x^4 \div y^4$ is equal to **[1]**

a) $(x \div y)^0$ b) $(x \div y)^4$

c) $(x \div y)^1$ d) $(x \div y)^8$

44. Find the value of n so that $(6)^{n+3} \times (6)^5 = (6)^{11}$ **[1]**

a) 2 b) 1

c) 6 d) 3

45. Generalised form of a three-digit number xyz is **[1]**

a) 100y + 10x + z b) x + y + z

c) 100x + 10y + z d) 1000x + 100y +10 z

46. Identify the missing digit in the number 234,4_6, if the number is divisible by 4. **[1]**

a) 2 b) 6

c) 5 d) 4

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

a) -2 b) -3

c) 3 d) 2

48. If 5 $\times$ A = CA then the values of A and C are **[1]**

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

c) A = 4, C = 2 d) A = 5, C = 1

49. Find A and B in the addition. A + A + A = BA **[1]**

a) A = 1 and B = 5 b) A = 5 and B = 5

c) A = 1 and B = 1 d) A = 5 and B = 1

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

$$\begin{array}{r} 2AB \\ +AB1 \\ \hline B18 \end{array}$$

a) A = 4, B = 5 b) A = 2, B = 7

c) None of these d) A = 4, B = 7

Solution

SUBJECT- MATHEMATICS041 - TEST - 03

Class 08 - Mathematics

1. **(a)** $\frac{2b^2}{b^2-a^2}$

   Explanation: $\frac{a^{-1}}{a^{-1}+b^{-1}} + \frac{a^{-1}}{a^{-1}-b^{-1}}$

   $=\frac{\frac{1}{a}}{\frac{1}{a}+\frac{1}{b}} + \frac{\frac{1}{a}}{\frac{1}{a}-\frac{1}{b}}$

   $=\frac{\frac{1}{a}}{\frac{a+b}{ab}} + \frac{\frac{1}{a}}{\frac{b-a}{ab}}$

   $=\frac{b}{b+a}+\frac{b}{b-a}$

   $= b[\frac{1}{b+a} + \frac{1}{b-a}]$

   $= b[\frac{b-a+b+a}{b^2-a^2}]$

   $= b[\frac{2b}{b^2-a^2}]$

   $= \frac{2b^2}{b^2-a^2}$

2. **(a)** Associative property of multiplication

   Explanation: The answer is associative property of multiplication as the product follows the associative property of multiplication rule which is $a \times (b \times c) = (a \times b) \times c$

3. **(b)** $-\frac{13}{17}$

   Explanation: The additive inverse of any rational number is the same number with the opposite sign, here the rational number is $\frac{13}{17}$, ao its additive inverse will be $\frac{-13}{17}$.

4. **(b)** $\frac{7}{-8}$

   Explanation: We know that, if the product of two rational numbers is 1, then they are multiplicative inverse of each other.

   Given number is $-1\frac{1}{7}$, i.e. $\frac{8}{7}$.

   Let the multiplicative inverse of -$\frac{8}{7}$ be x.

   $\Rightarrow \quad \frac{-8}{7} \times x = 1$

   $\Rightarrow \quad x = 1 \times \left(-\frac{7}{8}\right)$ [by cross-multiplication]

   $= \frac{-7}{8}$ or $\frac{7}{-8}$

   Hence, $\frac{7}{-8}$ is the multiplicative inverse of -$\frac{8}{7}$

5. **(a)** $-\frac{1}{4} \times \left\{\frac{2}{3} + \left(\frac{-4}{7}\right)\right\} = \left[-\frac{1}{4} \times \frac{2}{3}\right] + \left[-\frac{1}{4} \times \left(\frac{-4}{7}\right)\right]$

   Explanation: We know that, the distributive property of multiplication over addition for rational numbers can be expressed as a × (b + c) = ab + ac, where a, b and c are rational numbers.

   Here, $-\frac{1}{4} \times \left\{\frac{2}{3} + \left(\frac{-4}{7}\right)\right\} = \left[-\frac{1}{4} \times \frac{2}{3}\right] + \left[-\frac{1}{4} \times \left(\frac{-4}{7}\right)\right]$ is the example of distributive property of multiplication over addition for rational numbers.

6. **(d)** the identity for multiplication of rational numbers

   Explanation: One (1) is the identity for multiplication of rational numbers. That means, If a is a rational number. Then, a.1 = 1.a = a

7. **(c)** $\frac{25}{36}$

   Explanation: Given , a = 2 , b = 3 so,

   $\left(\frac{1}{a} + \frac{1}{b}\right)^a = \left(\frac{1}{2} + \frac{1}{3}\right)^2$

   $= \left(\frac{3+2}{6}\right)^2$

= $\left(\frac{5}{6}\right)^2$
= $\frac{25}{36}$

8. **(d)** rational
Explanation: $\frac{1}{x} = \frac{x^2}{27}$
$x^3 = 27$
$x = \sqrt[3]{27}$
x = 3 and x is a rational number

9. **(d)** 14, 42 years
Explanation: Let sahil's age = x
sahil's mother's age = $3x$
after 5 years their age will be
sahil's age = $x + 5$
sahil's mother's age = $3x + 5$
According to question,
$x + 5 + 3x + 5 = 66$
or, $4x + 10 = 66$
or, $4x = 66 - 10$
or, $4x = 56$
by transpposing
or,$x = 56/4$
or, $x = 14$.
Now sahil's age = 14years
sahil's mothers age = 42years

10. **(d)** $\frac{27}{10}$
Explanation: $\frac{x}{2} - \frac{1}{5} = \frac{x}{3} + \frac{1}{4}$
By L.C.M
or, $\frac{(5x-2)}{10} = \frac{(4x+3)}{12}$
by cross multiplication
or, 60x - 24 = 40x + 30
by transposing
or, 60x - 40x = 30 + 24
or, 20x = 54
or, x = $\frac{54}{20}$
in lowest term
or, x = $\frac{27}{10}$

11. **(b)** 288, 296 and 304
Explanation: let first number be = x
second multiple of 8 = x + 8
third multiple of 8 = x + 16
According to question
x + x + 8 + x + 16 = 888
or, 3x + 24 = 888
or, 3x = 888 - 24
or, 3x = 864
or, x = $\frac{864}{3}$
or, $x = 288$
now the first multiple of 8 = 288
second multiple of 8 = 296
third multiple of 8 = 304

12. **(d)** 10
Explanation: $\frac{2x}{3} + 1 = \frac{7x}{15} + 3$
by transposing
or, $\frac{2x}{3}$ - $\frac{7x}{15}$ = 3 - 1
or, $\frac{10x-7x}{15}$ = 2
or, 3x = 30
or, x = 10

13. **(b)** 5
Explanation: by transposing,the signs will be change
2x-3=7
2x=7+3
2x=10
x=10/2
x=5.
The correct option is 5

14. **(b)** 36
Explanation: $\frac{n}{2} - \frac{3n}{4} + \frac{5n}{6}$ = 21
by L.C.M of 2, 4 and 6 = 12
or, $\frac{(6n-9n+10n)}{12}$ = 21
or, $\frac{7n}{12}$ = 21
or, 7n = 252
or, n = $\frac{252}{7}$
or, n = 36

15. **(d)** $1\frac{2}{5}cm$
Explanation: The base of an isosceles triangle = $\frac{4}{3}$cm
let two equal sides are = x
perimeter of the triangle = $4\frac{2}{15}$cm
the perimeter of the triangle = sum of all sides
$\frac{62}{15}$ = x + x + $\frac{4}{3}$
or, $\frac{62}{15}$ = 2x + $\frac{4}{3}$
or, $\frac{62}{15}$ = $\frac{(6x+4)}{3}$
By crossmutliply,
or, 186 = 90x + 60
or, 186 - 60 = 90x
or, 126 = 90x
or, $\frac{126}{90}$ = x
or, $\frac{7}{5}$ = x
$1\frac{2}{5}cm$ = x

16. **(d)** $\frac{7}{5}$
Explanation: $a - \frac{a-1}{2} = 1 - \frac{a-2}{3}$
By L.C.M on both sides
$or, \frac{2a-a+1}{2} = \frac{3-a+2}{3}$
$or, \frac{a+1}{2} = \frac{5-a}{3}$
By cross-multiply,
or, 3a + 3 = 10 - 2a
by transposing
or, 3a + 2a = 10 - 3

or, 5a = 7

or, a = $\frac{7}{5}$

17. **(d)** 9

Explanation: Number of sides = $\frac{360^0}{exterior-angle}$

n = $\frac{360^0}{40^0}$ = 9

18. **(a)** right

Explanation:

Let an angle of a rectangle = x

x + x + x + x = 360^o (All angles a of a rectangle are equal)

4x = 360^o

x = $\frac{360^0}{4}$

x = 90^o

19. **(a)** 360°

Explanation: Interior angle = 180 - (90 + 30) = 60° (Angle sum property)

= 60°

Now x + y + z

= (180 - 90) + (180 - 60) + (180 - 30) (Linear pair)

= 90 + 120 + 150 = 360°

20. **(a)** 360°

Explanation: Given is a quadrilateral. Sum of all interior angles of quadrilateral = 360°

Single side of quadrilateral = 360 - (60 + 80 + 120)° = 360 - 260 = 100°

x + 120 = 180°

$\Rightarrow 180 - 120 = 60^\circ$ By linear pair property

$y + 80 = 180^\circ \Rightarrow y = 180 - 80 = 100^\circ$

$z + 60 = 180^\circ \Rightarrow z = 180 - 60 = 120^\circ$

$w + 100 = 180^\circ \Rightarrow w = 180 - 100^\circ = 80^\circ$

x + y + z + w = 60 + 100 + 120 + 80 = 360°

21. **(c)** 7

Explanation: A heptagon is a seven-sided polygon. It is also sometimes called a septagon.

22. **(c)** BC

Explanation: Opposite sides of a parallelogram are equal

23. **(a)** equal to 360^o

Explanation: We know that, the sum of interior angles of any polygon (convex or concave) having n sides

= (n - 2) $\times$ 180^o

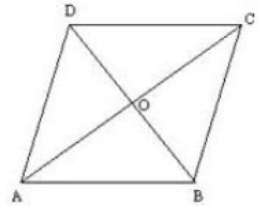
Therefore, the sum of angles of a concave quadrilateral = (4 - 2) $\times$ 180^o

= 360^o

24. **(c)** diagonals

Explanation:

In a rhombus, two diagonals intersect each other at right angles and become the perpendicular bisectors



In Rhombus ABCD, consider $\Delta AOD, \Delta AOB$

AD = AB (sides of a rhombus are equal)

OD = OB (diagonals of a rhombus bisect each other).

AO = OA (common side)

$\therefore$, using SSS congruency rule, $\Delta AOD \cong \Delta AOB$
$\Rightarrow \angle AOD = \angle AOB$
As $\angle AOD + \angle AOB = 180^\circ$
$\therefore \angle AOD = 90^\circ$
$\therefore AO \perp BD$
Hence, $AC \perp BD$.
Thus, In a rhombus, the diagonals bisect each other at 90°.

25. **(d)** $\frac{11}{20}$
Explanation: Total number of outcomes = 20
2 digit number= 11(10,11,12,13,14,15,16,17,18,19,20)
probability of getting a 2 digit number = $\frac{11}{20}$

26. **(a)** 1, 2, 3, 4, 5, 6
Explanation: When a dice is thrown there are only six possible outcomes 1, 2, 3, 4, 5, 6

27. **(b)** 85
Explanation: Upper limit of class interval 75-85 is 85. Note The upper value of class interval is called its upper class limit and lower value of a class interval is called lower class limit.

28. **(c)** 1
Explanation: When there are only 6 numbers, if you select one of them, you will always be successful. So probability is 1.

29. **(b)** 2 : 1
Explanation: Distribution of protein in muscles = $\frac{1}{3}$
Distribution of protein in bones = $\frac{1}{6}$
Ratio of distribution of proteins in the muscles to that of proteins in the bones $= \frac{1}{3} : \frac{1}{6} = \frac{1}{3} \times \frac{6}{1} : 1$ = 2 : 1

30. **(d)** 10
Explanation: 10 $\times$ 1=10
10 people choose red colour.

31. **(d)** bars
Explanation: A display of information using bars of uniform width, their heights being proportional to the respective values.

32. **(a)** 196
Explanation: The answer is 196 which is sqaure of 14 and the next square number is 225 which does not lie between 190 and 200.

33. **(d)** 62^2
Explanation: The unit place of the square of 62^2 = 2^2 = 4 [$\because$ 2^2 = 4]
Clearly, 62^2 has 4 at the unit's place.

34. **(d)** A
Explanation: The answer is 625 as the other numbers are 347, 658,233 and they cannot be perfect squares as a perfect square number never ends with 2, 3, 7, 8.

35. **(d)** $\frac{27}{64}$
Explanation: IF $\sqrt[3]{\frac{x}{y}} = \frac{3}{4}$, then $\frac{x}{y}$ = _____.
Cubing both sides,
$\sqrt[3]{\left(\frac{x}{y}\right)}^3 = \left[\frac{3}{4}\right]^3$
$\frac{x}{y} = \frac{27}{64}$

36. **(a)** $2^3 \times 2^3 \times 3^3$
Explanation: 1728 = 2 $\times$2 $\times$ 2$\times$2 $\times$ 2 $\times$2 $\times$ 3 $\times$3 $\times$ 3
= $2^3 \times 2^3 \times 3^3$

37. **(c)** -15625

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

38. **(b)** 1

Explanation: $(-5)^{a+3} \times (-5)^2 = (-5)^6$

$(-5)^{a+3} = (-5)^6 \div (-5)^2$

$(-5)^{a+3} = (-5)^{6-2}$

$(-5)^{a+3} = (-5)^4$

Hence, a + 3 = 4,
So, a = 1

39. **(c)** p^5

Explanation: Using law of exponents, $a^m \div a^n = (a)^{m-n}$ [$\because$ a is non-zero integer]
Similarly, $p^{13} \div p^8 = (p)^{13-8} = (p)^5$

40. **(b)** 2.34×10^8

Explanation: Given, $234000000 = 234 \times 10^6 = 2.34 \times 10^{6+2} = 2.34 \times 10^8$
Hence, standard form of 234000000 is 2.34×10^8

41. **(d)** -1

Explanation: for y = 1,

$(-y)^4 \times (-y)^5$

$(-1)^4 \times (-1)^5$

$-1 \times -1 \times -1 \times -1 \times -1 \times -1 \times -1 \times -1 \times -1 = -1$

42. **(d)** 44

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

$\therefore (7^{-1} - 8^{-1})^{-1} - (3^{-1} - 4^{-1})^{-1}$

$= \left(\frac{1}{7} - \frac{1}{8}\right)^{-1} - \left(\frac{1}{3} - \frac{1}{4}\right)^{-1}$

$= \left(\frac{1}{56}\right)^{-1} - \left(\frac{1}{12}\right)^{-1} = 56 - 12 = 44$

43. **(b)** $(x \div y)^4$

Explanation: Using laws of exponents, $\frac{a^m}{b^m} = \left(\frac{a}{b}\right)^m = (a \div b)^m$ [$\because$ a and b are non-zero integers]

Similarly, $x^4 \div y^4 = \left(\frac{x}{y}\right)^4 = (x \div y)^4$

44. **(d)** 3

Explanation: $(6)^{n+3} \times (6)^5 = (6)^{11}$

$(6)^{n+3} = (6)^{11} \div (6)^5$

$(6)^{n+3} = (6)^{11} \times (6)^{-5}$

$(6)^{n+3} = (6)^{11-5}$

$(6)^{n+3} = (6)^6$

Hence, n + 3 = 6
So, n = 3

45. **(c)** 100x + 10y + z

Explanation: In general, any three-digit number xyz can be written as,
$xyz = 100 \times x + 10 \times y + 1 \times z$
= 100x + 10y + z
where x is a hundredth place digit, y is a ten's place digit and z is a unit's place digit. Hence, if it's a three-digit number, the places will be ones, tens, and hundreds from right to left.

46. **(c)** 5

Explanation: Last two digits number must be divisible by 4. Only 1 3 5 7 9 can be possible.

47. **(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

48. **(a)** A = 5, C = 2
Explanation: 5 $\times$ A = CA
A = 5, C = 2
5$\times$5 = 25

49. **(d)** A = 5 and B = 1
Explanation: Here, A + A + A = BA as the sum of 3 ones digit numbers is a two-digit number so the value of A will be greater than 3.
Putting the value of A = 4,
4 + 4 + 4 = 12 which do not satisfy the equation.
Putting the value of A = 5,
5 + 5 + 5 = 15, which satisfies the equation.
Therefore, A= 5 and B = 1.

50. **(d)** A = 4, B = 7
Explanation: 1 + B is 8 so B = 7. B + A gives 1 in units digit. Thus A has to be 4.