

BUDHA DAL PUBLIC SCHOOL PATIALA
FIRST TERM EXAMINATION (21 September 2023)

MATHEMATICS

Class - VIII

(Set - A)

Time Allowed: 3 hours

Maximum Marks: 80

Instructions:

1. All questions are compulsory.
2. Section - A: Q.No. 1 to 6 carry 1 mark each
3. Section - B: Q.No. 7 to 12 carry 2 marks each
4. Section - C: Q.No. 13 to 22 carry 3 marks each
5. Section - D: Q.No. 23 to 30 carry 4 marks each

SECTION-A

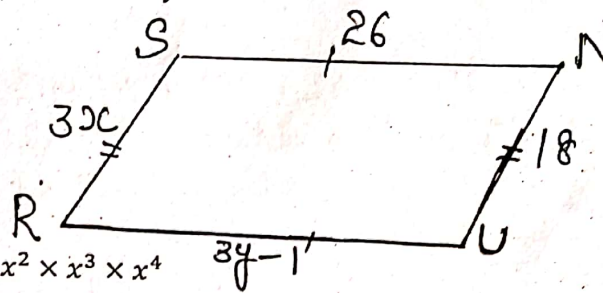
- | | | |
|----|---|---|
| 1. | Find the value of $(2^0 + 5^0) \times 2^2$ | 1 |
| 2. | Solve $5x + 9 = 5 + 3x$ | 1 |
| 3. | Name a quadrilateral whose diagonals are equal. | 1 |
| 4. | Write additive inverse of $\frac{-17}{21}$ | 1 |
| 5. | Express 169 as sum of 13 odd numbers. | 1 |
| 6. | Express 5176000000 in the standard form. | 1 |

SECTION-B

- | | | |
|-----|--|---|
| 7. | Name the property under multiplication used in the following: | 2 |
| | a) $\frac{-17}{11} \times \frac{-3}{7} = \frac{-3}{7} \times \frac{-17}{11}$ | |
| | b) $\frac{-18}{28} \times \frac{28}{-18} = 1$ | |
| 8. | Solve the following and check the result | 2 |
| | $8x + 4 = 3(x - 1) + 7$ | |
| 9. | a) Simplify and write the answer in the exponential form $(-3)^4 \times \left(\frac{5}{3}\right)^4$ | 2 |
| | b) Find the value of $\left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{3}\right)^{-2} + \left(\frac{1}{4}\right)^{-2}$ | |
| 10. | 3136 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 and the number of plants in each row. | 2 |

11. 'RUNS' is a parallelogram. Find x and y

2



12. a) Find the product of $x \times x^2 \times x^3 \times x^4$
 b) Add $ab - bc, bc - ca, ca - ab$

2

SECTION-C

13. a) Write a Pythagorean triplet if one number is 18.
 b) Find the smallest number by which 2028 should be multiplied so as to get a perfect square number.

3

14. Solve the following linear equation : $x - \frac{x-1}{2} = 1 - \frac{x-2}{3}$

3

15. a) Simplify $(a + b + c)(a + b - c)$
 b) Subtract $5x^2 - 4y^2 + 6y - 3$ from $7x^2 - 4xy + 8y^2 + 5x - 3y$

3

16. Find the amount and compound interest on Rs. 7000 for 2 years at rate 20% per annum compounded annually.

3

17. State true and false :
 a) All rhombuses are parallelogram.
 b) All square are trapeziiums.
 c) Minimum interior angle possible for a regular polygon is 90° .

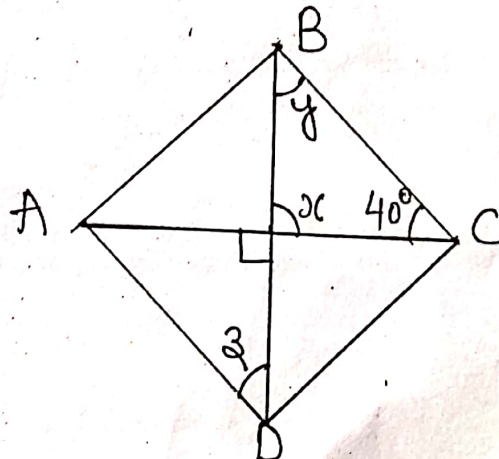
3

18. Find the smallest square number that is divisible by each of the numbers 8, 15 and 20.

3

19. Consider the following parallelogram ABCD and find the values of unknown angles x, y, z

3



A-2

20. Fill in the blanks : 3
- The multiplicative inverse of $\frac{4}{3}$ is _____
 - Zero has _____ reciprocal
 - There are _____ rational numbers between any two rational numbers.

21. Simplify $\frac{3^{-5} \times 10^{-5} \times 125}{5^{-7} \times 3^{-5}}$ 3

22. The cost of an article at a shop was Rs. 450. The sale tax charged was 5%. Find the bill amount. 3

SECTION-D

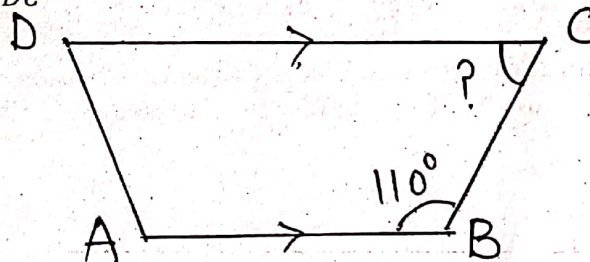
23. Find $\frac{2}{5} \times \frac{-8}{7} - \frac{1}{15} - \frac{8}{7} \times \frac{3}{5}$ by using appropriate properties. 4

24. Find the least number that must be subtracted from 5607 so as to get a perfect square. Also find the square root of the perfect square. 4

25. a) Simplify and evaluate $3y(2y - 7) - 3(y - 4) - 63$ for $y = 1$ 4

b) Obtain the volume of a rectangular box with length, breadth and height as $2p, 4q, 8r$

26. a) How many sides does a regular polygon have if each of its interior angle is 165° ? 4
 b) Find $m\angle c$ if $AB \parallel DC$



27. Solve $5x - 2(2x - 7) = 2(3x - 1) + \frac{7}{2}$ 4

28. a) 72% of 25 students are interested in Mathematics. How many are not interested in Mathematics? 4

b) Convert $2 : 3$ into percentage.

Case Study Questions

29. A teacher shows 4 articles of different lengths in a class. The difficulty is that the lengths are in exponential forms. The lengths of articles are as follows: 4

- | | | |
|-----------|---|-------------------------|
| Article 1 | = | 2×5^0 |
| Article 2 | = | $2 \times 2^2 \times 1$ |
| Article 3 | = | $(2^0 + 2 + 1)$ |
| Article 4 | = | 3^2 |

Answer the following:

- 1) What is the length of 1st article?
a) 9 b) 4 c) 8 d) 2
- 2) What is the sum of lengths of all articles?
a) 23 b) 2 c) 8 d) 4
- 3) What is the product of lengths of articles 1 and article 3?
a) 2 b) 8 c) 9 d) none
- 4) What is the ratio of lengths of 1st and 4th article?
a) 2 : 9 b) 2 : 8 c) 4 : 9 d) 1 : 2

30. In an examination, 300 students appeared. Out of these students 70% got first division, 25% got second division and the remaining just passed. Assuming that no student failed.

Answer the following:

- 1) How many students got 1st division?
a) 75 b) 300 c) 210 d) 25
- 2) How many students got second division?
a) 210 b) 75 c) 25 d) 15
- 3) Find the number of students who just passed.
a) 15 b) 25 c) 50 d) none
- 4) Find the ratio of students who have got 1st and 2nd division.
a) 14 : 5 b) 70 : 25 c) 25 : 5 d) none

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MATHEMATICS

Class - VIII

(Set - B)

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Maximum Marks: 80

Instructions:

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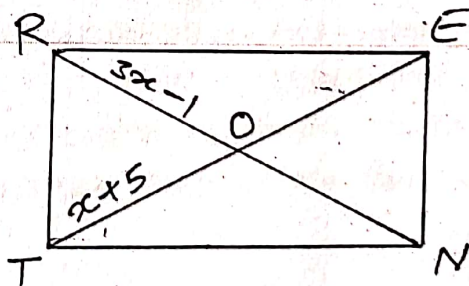
SECTION-A

- | | | |
|----|---|---|
| 1. | Express 9.248×10^{-3} in usual form | 1 |
| 2. | How many non square numbers lie between 11^2 and 12^2 | 1 |
| 3. | Write multiplicative inverse of $\frac{-29}{17}$ | 1 |
| 4. | Name a quadrilateral whose diagonals bisect each other. | 1 |
| 5. | Solve $2y - 1 = y + 4$ | 1 |
| 6. | Find the value of $(2^0 + 3^0 + 4^0)$ | 1 |

SECTION-B

- | | | |
|----|--|---|
| 7. | a) Find the product of $\frac{-2}{3}x^2 \times \frac{9}{4}x$ | 2 |
| | b) Add $x - 2y, 2x + 3y, -y - 3x$ | |

8. RENT is a rectangle. Its diagonals meet at O.
Find x if $OT = x + 5$ and $OR = 3x - 1$



- | | | |
|-----|--|---|
| 9. | A gardener plants 3364 trees in such a way that there are as many rows as there are trees in a row. Find the number of trees in a row. | |
| 10. | a) Simplify and write the answer in the exponential form $(2)^5 \times \left(\frac{-3}{2}\right)^5$ | 2 |
| | b) Find the value of $2^{-1} + 3^{-1}$ | |
| 11. | Solve the following equation and check the result | 2 |
| | $2(y + 3) + 5 = y + 11$ | |

12. Name the property used in following

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

b) $\frac{-11}{20} + \frac{11}{20} = 0$

SECTION-C

13. a) Simplify $(x - y)(2x + y)$

b) Subtract $4a^2 - b^2 + ab$ from $9b^2 - a^2 - 5ab$

14. Solve the following linear equation : $m + \frac{m+2}{3} = 2 - \frac{m-1}{2}$

15. a) Write a Pythagorean triplet if one number is 12.

b) Find the least number which must be added to 1840 to make it a perfect square.

16. Simplify $\frac{25 \times t^{-4}}{5^{-3} \times 10 \times t^{-8}}$

17. Fill in the blanks :

a) The additive inverse of $\frac{7}{5}$ is _____

b) _____ is the identity for the addition of rational numbers.

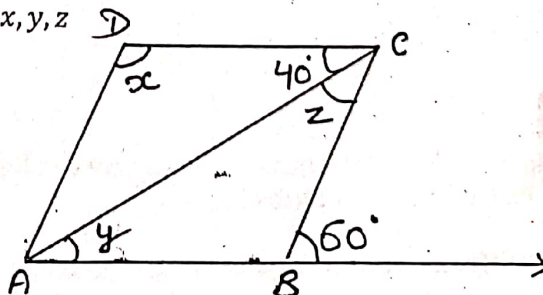
c) Zero has _____ reciprocal

18. Find the smallest square number that is divisible by each of the number 4, 9 and 10.

19. Find the compound interest and amount on Rs. 8000 for 2 years at 5% per annum compounded annually.

20. The cost of a book was Rs. 350. The bookseller gave me 20% discount. What amount did I pay for the book?

21. Consider the following parallelogram ABCD and find the values of unknown angles x, y, z



22. State True and False

3

- a) All trapeziums are squares.
- b) All rhombuses are parallelogram.
- c) Maximum exterior angle possible for a regular polygon is 120° .

SECTION-D

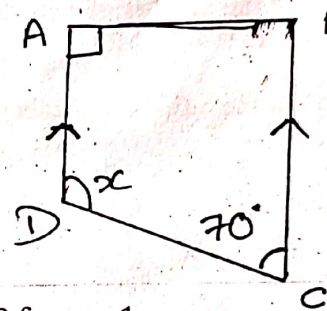
23. Solve $3(2x + 1) - 5x = 3(2x - 3) + \frac{5}{3}$

24. a) Convert 3 : 7 into percentage.

b) If 65% of 80 people like tea and remaining like coffee, then find number of people who like coffee.

25. a) Find the number of sides of a regular polygon each of whose exterior angle measure is 30° .

b) In the given figure if $AD \parallel BC$ find the value of x



26. a) Simplify and evaluate $5x(8 + 2x) - 2(3x - 1) - 23$ for $x = 1$

4

b) Obtain the volume of a rectangular box with length, breadth and height as $3l, 4m, 2n$

27. Find the smallest number which 720 must be multiplied to get a perfect square. Also, find the square root of the perfect square so obtained.

4

28. Find $\frac{2}{3} \times \frac{3}{5} + \frac{5}{2} - \frac{3}{5} \times \frac{1}{6}$ by using appropriate properties.

4

Case Study Questions

29. A teacher shows 4 articles of different lengths in a class. The difficulty is that the lengths are in exponential forms. The lengths of articles are as follows:

4

- Article 1 = 2×5^0
- Article 2 = $2 \times 2^2 \times 1$
- Article 3 = $(2^0 + 2 + 1)$
- Article 4 = 3^2

Answer the following:

- 1) What is the length of 2^{nd} article?
a) 8 b) 20 c) 4 d) 2

- 2) What is the product of lengths of article 2nd and article 3rd?
a) 23 b) 32 c) 20 d) 40
- 3) What is the ratio of lengths of 1st and 4th article?
a) 2 : 1 b) 9 : 2 c) 2 : 9 d) 2 : 3
- 4) What is the sum of lengths of all articles?
a) 4 b) 2 c) 8 d) 23

30. In an examination, 500 students appeared. Out of these students 80% got first division, 15% got second division and the remaining just passed. Assuming that no student failed.

Answer the following:

- 1) How many students got 1st division?
a) 320 b) 420 c) 300 d) 400
- 2) How many students got second division?
a) 75 b) 57 c) 15 d) 80
- 3) Find the number of students who just passed.
a) 15 b) 20 c) 25 d) 52
- 4) Find the ratio of students who have got 1st and 2nd division.
a) 16 : 3 b) 3 : 16 c) 20 : 3 d) none