THIRAN

(Targeted Help for Improving
Remediation & Academic Nurturing)

MATHEMATICS

WORKBOOK

9

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DEPARTMENT OF SCHOOL EDUCATION
GOVERNMENT OF TAMIL NADU

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THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a **SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC** and to secure to all its citizens:

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity;

and to promote among them all

FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

Content

Fundamental Concepts

9

I Can... I Will...

15 ☆ Date:

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Note: Colour the stars ☆ after completing each module

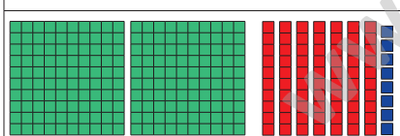
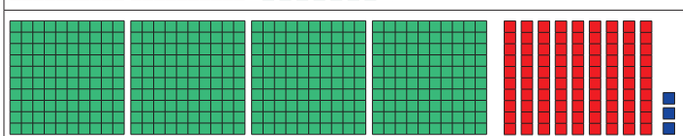
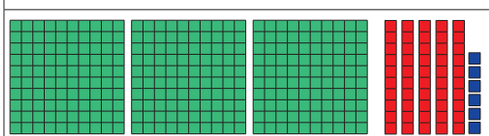
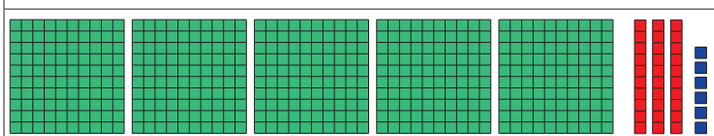
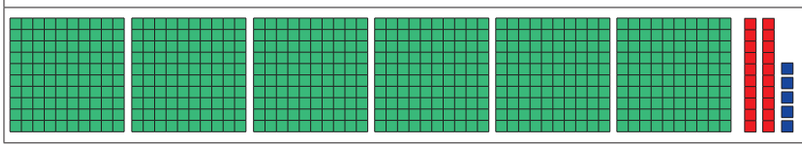
Content

1 Numbers and place value

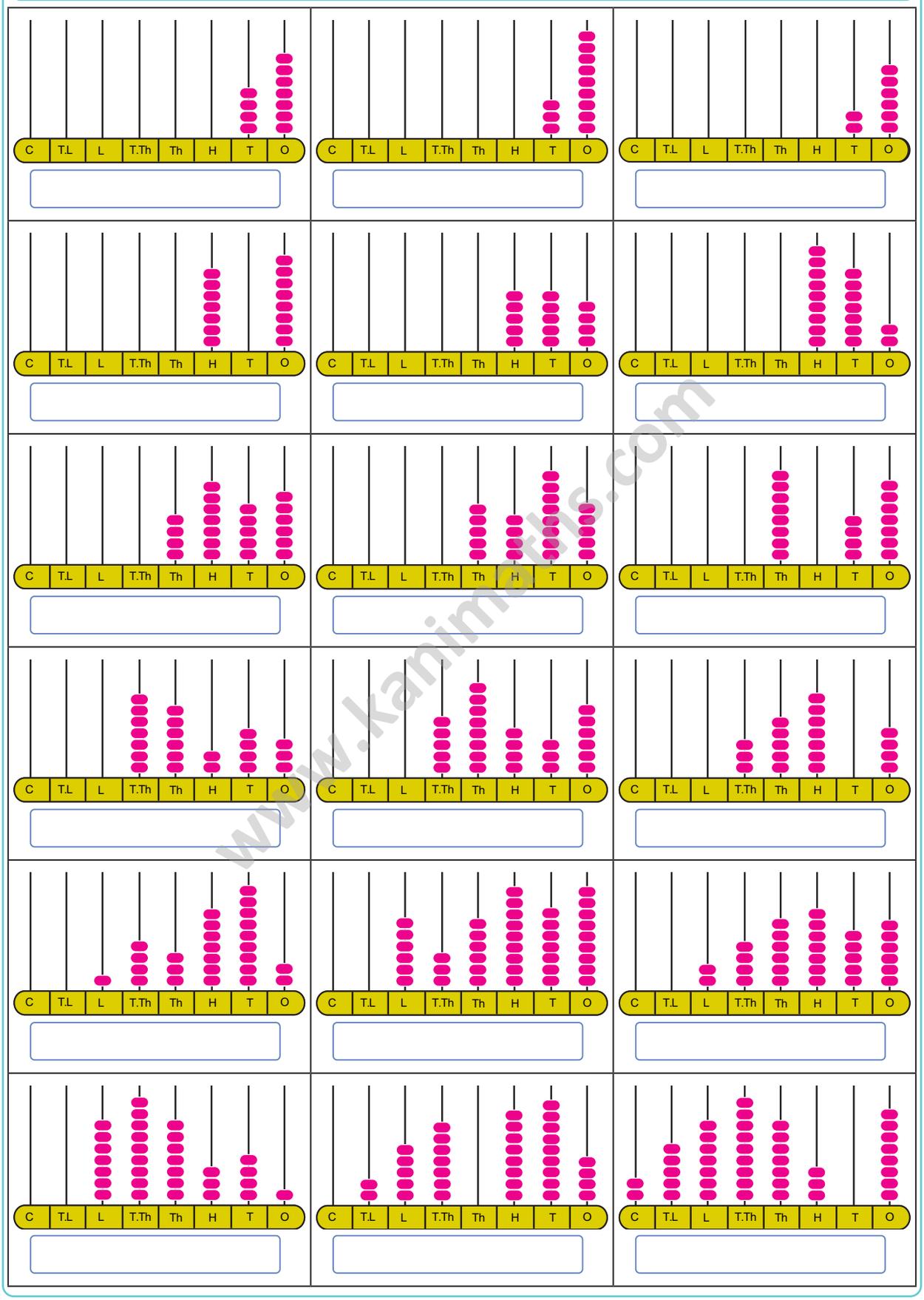
1.1 Count and write.

Fruits	How many		Number
	Tens	Ones	
			
			
			
			
			
			
			

1.2 Count the boxes and write in expanded and simplified form.

Boxes	Expanded form	Simplified form
		
		
		
		
		

1.3 Write the number represented by the beads in the abacus.



1.4 Answer the following.

1) 43 = _____ Tens + _____ Ones.

2) _____ = 6 Tens + 7 Ones.

3) 523 = _____ Hundreds + _____ Tens + _____ Ones.

4) _____ = 4 Hundreds + 5 Tens + 2 Ones.

5) 8670 = _____ Thousands + _____ Hundreds + _____ Tens + _____ Ones.

6) _____ = 2 Thousands + 4 Hundreds + 9 Tens + 3 Ones.

7) 35942 = _____ Ten thousands + _____ Thousands + _____ Hundreds + _____ Tens + _____ Ones.

8) _____ = 8 Ten thousands + 1 Thousands + 0 Hundreds + 7 Tens + 2 Ones.

9) 741685 = _____ Lakhs + _____ Ten thousands + _____ Thousands + _____ Hundreds + _____ Tens + _____ Ones.

10) _____ = 5 Lakhs + 3 Ten thousands + 7 Thousands + 4 Hundreds + 2 Tens + 9 Ones.

11) Expanded form of 826 is_____

12) Simplified form of 5000 + 300 + 40 + 7 is _____

13) Expanded form of 74185 is _____

14) Simplified form of 300000 + 7000 + 500 +80 + 1 is _____

15) The number with 2 thousands, 3 hundreds, 6 tens and 4 ones is _____

16) Expanded form of 9 thousands 5 hundreds forty is _____.

17) What is the smallest eight digit number? _____.

2 Comparison of numbers

2.1 Compare the numbers and put the appropriate symbol (>, <, =).

12 ☐ 14	61 ☐ 16	124 ☐ 276
18 ☐ 20	59 ☐ 65	342 ☐ 438
45 ☐ 33	35 ☐ 53	527 ☐ 294
25 ☐ 52	64 ☐ 64	613 ☐ 710
36 ☐ 36	78 ☐ 67	348 ☐ 384
53 ☐ 50	70 ☐ 81	596 ☐ 569
11 ☐ 13	93 ☐ 39	987 ☐ 978

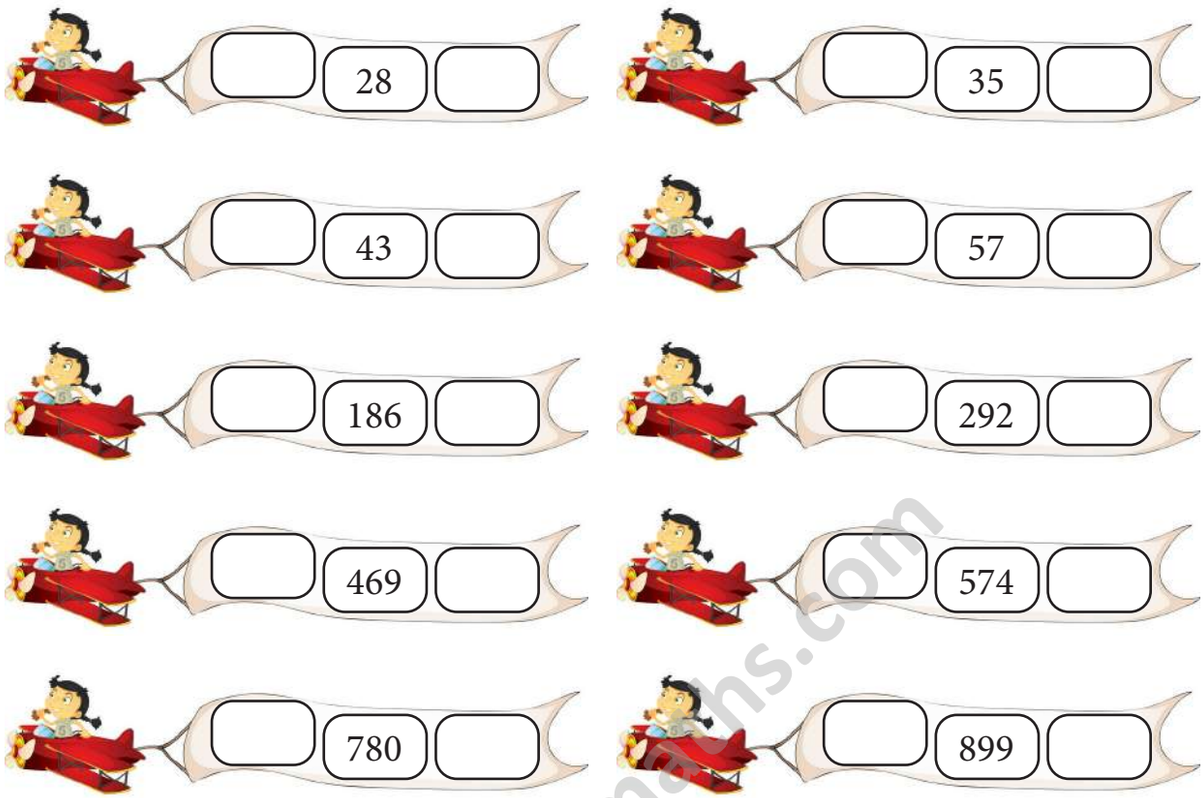
2.2 Circle the biggest number.

6735, 4378, 6753, 4387	5481, 5841, 4158, 4185
72346, 72362, 72436	35948, 35984, 35849
841253, 841523, 841235	922762, 922267, 927262

2.3 Circle the smallest number.

8427, 8472, 8724, 8742	6538, 6583, 6835, 6853
37529, 37592, 37295	84312, 84213, 84123
761534, 764315, 761543	943863, 934863, 948363

2.4 Write the predecessor and successor of the given numbers.



2.5 Answer the following.

1) Predecessor of 2741 is _____

2) Successor of 5699 is _____

3) The number in-between 3789 and 3791 is _____

4) Predecessor of 98145 is _____

5) Successor of 72528 is _____

6) The number in-between 64590 and 64592 is _____

7) Predecessor of 365284 is _____

8) Successor of 297518 is _____

9) The number in-between 99999 and 100001 is _____

2.6 **Write the numbers in ascending and descending order.**

2, 5, 7, 9, 6

Ascending order : _____.

Descending order: _____.

88, 95, 55, 10, 42

Ascending order : _____.

Descending order: _____.

294, 132, 249, 321, 312

Ascending order : _____.

Descending order: _____.

7345, 3745, 8269, 9911, 2869

Ascending order : _____.

Descending order: _____.

12345, 13452, 15234, 14523

Ascending order : _____.

Descending order: _____.

97531, 95317, 93175, 91753

Ascending order : _____.

Descending order: _____.

345678, 356784, 367845, 378456

Ascending order : _____.

Descending order: _____.

3 Addition

3.1 Add the following.

45 + 33 =	24 + 15 =	32 + 14 =	71 + 27 =	53 + 25 =	83 + 16 =
233 + 125 =	354 + 224 =	581 + 300 =	721 + 265 =	427 + 232 =	651 + 340 =
3257 + 3421 =	4368 + 1521 =	5794 + 2105 =	6207 + 3482 =	7538 + 2140 =	8764 + 1235 =
27435 + 12253 =	34107 + 25632 =	40715 + 36274 =	54216 + 23572 =	73108 + 24680 =	83175 + 14213 =
35712 + 24275 =	43160 + 42718 =	70653 + 18346 =	52143 + 31624 =	62105 + 26472 =	87341 + 12526 =
214735 + 132152 =	376458 + 123441 =	531624 + 327165 =	627403 + 132585 =	820431 + 158268 =	764209 + 135680 =
324254 + 235642 =	410753 + 348132 =	731615 + 145283 =	573890 + 225108 =	742016 + 157872 =	815432 + 123456 =

3.2 Add the following.

28 + 25 =	34 + 29 =	43 + 18 =	56 + 37 =	63 + 28 =	75 + 15 =
124 + 118 =	237 + 139 =	468 + 295 =	673 + 318 =	761 + 219 =	826 + 157 =
2357 + 1784 =	3162 + 2468 =	5738 + 3649 =	6437 + 3675 =	8573 + 1684 =	9639 + 1234 =
24376 + 18769 =	57340 + 63789 =	47195 + 34279 =	67318 + 34795 =	43769 + 47864 =	75143 + 41869 =
86310 + 97432 =	69758 + 37659 =	48961 + 27899 =	97421 + 12832 =	57208 + 34279 =	75309 + 64715 =
273684 + 358615 =	434798 + 376985 =	579684 + 430627 =	832170 + 437569 =	754698 + 326417 =	643254 + 186576 =
836719 + 318205 =	643708 + 375428 =	376359 + 728496 =	278013 + 453992 =	765432 + 234567 =	987654 + 123456 =

4 Subtraction

4.1 Subtract the following.

26 − 14	29 − 17	35 − 20	38 − 21	43 − 12	48 − 32
374 − 122	468 − 235	575 − 125	788 − 367	896 − 581	978 − 545
3769 − 1457	4878 − 1563	6982 − 5762	7469 − 6231	8794 − 7651	9687 − 7432
27964 − 15631	29875 − 25352	36751 − 24640	47968 − 32517	49719 − 28506	56789 − 12345
98765 − 23455	78946 − 52631	84379 − 61278	74753 − 62542	31869 − 20647	98476 − 76254
368759 − 143527	269571 − 148360	476328 − 243217	569436 − 328125	741859 − 320742	694587 − 573255
796285 − 246063	623795 − 312084	875694 − 354393	679842 − 543721	847695 − 432573	964758 − 723415

4.2 Subtract the following.

27 − 18 =	35 − 26 =	54 − 37 =	62 − 25 =	78 − 39 =	80 − 68 =
254 − 179 =	327 − 298 =	533 − 347 =	825 − 536 =	751 − 348 =	900 − 692 =
3163 − 2475 =	5219 − 2735 =	4628 − 2739 =	6427 − 3548 =	7520 − 3648 =	8600 − 3472 =
21543 − 18765 =	42361 − 27584 =	31752 − 24835 =	54218 − 35679 =	42163 − 24859 =	92000 − 71543 =
62085 − 45796 =	83042 − 42859 =	72154 − 43267 =	67542 − 38675 =	43210 − 36875 =	94573 − 87698 =
243152 − 165485 =	312084 − 135795 =	743205 − 368546 =	520037 − 347829 =	654321 − 123456 =	765210 − 384576 =
621158 − 340279 =	741068 − 326899 =	736452 − 576364 =	820075 − 345678 =	875204 − 537964 =	932154 − 527896 =

5 Multiplication

5.1 Multiply.

8 × 2	9 × 3	7 × 4	9 × 5
7 × 6	8 × 9	5 × 9	8 × 7

72 × 4	35 × 3	47 × 5	84 × 2
78 × 8	74 × 6	35 × 7	87 × 9

25 × 15	83 × 12	26 × 24	43 × 18
63 × 27	49 × 38	56 × 29	78 × 57

5.2 Multiply.

634 × 75	728 × 86	896 × 69
827 × 365	698 × 437	796 × 289
7539 × 68	8465 × 76	9378 × 87
48695 × 7	74982 × 8	87569 × 9

6 Square numbers

6.1 Answer the following questions.

1. Circle the perfect square numbers:

   15, 36, 48, 64, 80

2. The square number of 7 is _____.

3. 64 is the square number of _____

4. Circle the perfect square numbers:

   9, 35, 121, 84, 100

5. The square number of 9 is _____.

6. 144 is the square number of _____

1. Circle the perfect square numbers:

   4, 26, 81, 111, 225

2. The square number of 10 is _____.

3. 169 is the square number of _____

4. Circle the perfect square numbers:

   48, 64, 144, 200, 400

5. The square number of 19 is _____.

6. 441 is the square number of _____

6.2 Answer the following questions.

1. Check whether 81 is a perfect square number.

2. Check whether 169 is a perfect square number.

3. Check whether 300 is a perfect square number.

4. Check whether 484 is a perfect square number.

5. Check whether 576 is a perfect square number.

7 Least Common Multiple (LCM)

7.1 Answer the following questions.

1. The multiples of 2 are _____, _____, _____, _____, _____.
2. The multiples of 3 are _____, _____, _____, _____, _____.
3. The multiples of 5 are _____, _____, _____, _____, _____.
4. The multiples of 7 are _____, _____, _____, _____, _____.
5. The multiples of 9 are _____, _____, _____, _____, _____.
6. The multiples of 11 are _____, _____, _____, _____, _____.
7. The multiples of 13 are _____, _____, _____, _____, _____.

1. The common multiples of 2 and 3 are _____, _____, _____.
2. The common multiples of 3 and 4 are _____, _____, _____.
3. The common multiples of 2 and 5 are _____, _____, _____.
4. The common multiples of 3 and 5 are _____, _____, _____.
5. The common multiples of 5 and 7 are _____, _____, _____.
6. The common multiples of 5 and 8 are _____, _____, _____.
7. The common multiples of 7 and 9 are _____, _____, _____.

7.2 Answer the following questions.

1. Find the LCM of 4 and 5.

2. Find the LCM of 5 and 8.

3. Find the LCM of 8 and 11.

4. Find the LCM of 9 and 12.

5. Find the LCM of 15 and 20.

8 Division

8.1 Divide, find the quotient and remainder.

32 ÷ 4	45 ÷ 3	28 ÷ 2	75 ÷ 5
140 ÷ 6	175 ÷ 8	179 ÷ 7	183 ÷ 9
260 ÷ 10	675 ÷ 15	880 ÷ 20	975 ÷ 25

8.2 Divide, find the quotient and remainder.

2480 ÷ 16	3624 ÷ 12	4456 ÷ 11	5531 ÷ 20
27431 ÷ 15	48624 ÷ 18	75329 ÷ 14	84573 ÷ 19
378546 ÷ 7	497618 ÷ 8	753826 ÷ 6	943785 ÷ 9

9 Highest Common Factor (HCF)

9.1 Answer the following questions.

1. The factors of 20 are _____, _____, _____, _____, _____.
2. The factors of 24 are _____, _____, _____, _____, _____.
3. The factors of 32 are _____, _____, _____, _____, _____.
4. The factors of 48 are _____, _____, _____, _____, _____.
5. The factors of 60 are_____, _____, _____, _____, _____.
6. The factors of 72 are _____, _____, _____, _____, _____.
7. The factors of 84 are _____, _____, _____, _____, _____.

1. The common factors of 8 and 12 are _____, _____,_____.
2. The common factors of 15 and 20 are _____, _____,_____.
3. The common factors of 16 and 24 are _____, _____,_____.
4. The common factors of 20 and 25 are _____, _____,_____.
5. The common factors of 7 and 8 are _____, _____,_____.
6. The common factors of 24 and 36 are _____, _____,_____.
7. The common factors of 39 and 65 are _____, _____,_____.

9.2 Answer the following questions.

1. Find the HCF of 15 and 25.

2. Find the HCF of 5 and 9.

3. Find the HCF of 20 and 28.

4. Find the HCF of 35 and 42.

5. Find the HCF of 45 and 72.

10 Divisibility

10.1 Answer the following questions.

1. Circle the numbers that are divisible by 2: 24, 35, 48, 41, 60
2. Circle the numbers that are divisible by 3: 33, 46, 57, 64, 75
3. Circle the numbers that are divisible by 4: 22, 28, 40, 39, 60
4. Circle the numbers that are divisible by 5: 25, 31, 45, 41, 70
5. Circle the numbers that are divisible by 7: 27, 35, 48, 56, 62
6. Circle the numbers that are divisible by 9: 36, 44, 54, 72, 80
7. Circle the numbers that are divisible by 11: 21, 33, 45, 77, 110

1. Circle the numbers that are divisible by 2 and 4: 10, 20, 30, 40, 50
2. Circle the numbers that are divisible by 5 and 10: 25, 30, 35, 40, 45
3. Circle the numbers that are divisible by 3 and 6: 30, 33, 36, 39, 42
4. Circle the numbers that are divisible by 6 and 10: 36, 60, 130, 120, 180
5. Circle the numbers that are divisible by 5 and 8: 40, 60, 80, 75, 120
6. Circle the numbers that are divisible by 9 and 11: 90, 99, 108, 198, 207
7. Circle the numbers that are divisible by 10 and 11: 100, 110, 200, 220, 300

10.2 Answer the following questions.

1. The number 94 is divisible by _____.
2. The number 104 is divisible by _____.
3. The number 381 is divisible by _____.
4. The number 215 is divisible by _____.
5. The number 306 is divisible by _____.
6. The number 304 is divisible by _____.
7. The number 891 is divisible by _____.

1. The number 33 is divisible by _____ and _____
2. The number 99 is divisible by _____ and _____
3. The number 729 is divisible by _____ and _____
4. The number 154 is divisible by _____ and _____
5. The number 963 is divisible by _____ and _____
6. The number 945 is divisible by _____ and _____
7. The number 440 is divisible by _____ and _____

11 Number system

11.1 Answer the following questions.

1. Circle the prime numbers: 27, 23, 34, 41, 53

2. Circle the composite numbers: 33, 46, 59, 64, 71

3. Write the composite numbers between 20 and 30. _____

4. Write the prime numbers between 75 and 85. _____

5. Is 1 a prime or composite? _____

6. Are all even numbers prime? _____

7. Can two consecutive numbers be prime? _____

11.2 Observe the digit in the ones place and write the odd numbers and even numbers.

84 451 8 363 87 168 9

7289 14 6006 281 12346 300

692 70001 74 532 95 4784 66589

Odd numbers	Even numbers

11.3 Answer the following questions.

1. The smallest number of whole number is _____.
2. 18 + 0 = _____.
3. 0 × 26 = _____.
4. 0 − 25 = _____.
5. The product of two whole numbers is a _____ number.

1. All natural numbers except _____ have a predecessor
2. The product of two natural numbers is a _____ number.
3. The addition of two natural numbers is a _____ number.
4. The subtraction of two natural numbers _____ natural number.
5. The division of two natural numbers _____ natural number.

1. 0 is the predecessor of _____ and successor of _____.
2. Circle the negative integers. 7, 0, -3, 4, 7, -2.
3. The numbers to the left of 0 are _____ integers.
4. The product of two integers is a _____.
5. The addition of two integers is a _____.

12 Operations on integers

Answer the following questions.

1) $15 + (-7) =$ _____

2) $32 + (-18) =$ _____

3) $(-29) + (-16) =$ _____

1) $8 - (-12) =$ _____

2) $(-23) - 15 =$ _____

3) $(-17) - (-28) =$ _____

1) $(-8) \times 4 =$ _____

2) $(-10) \times (-7) =$ _____

3) $20 \times (-8) =$ _____

1) $12 \div (-3)$ _____

2) $(-35) \div 7$ _____

3) $(-65) \div (-13)$ _____

13 Fractions and decimal numbers

13.1 Answer the following questions.

1. Fraction represented by the shaded portions in the picture  is _____.

2. In $\frac{5}{7}$ _____ is numerator and _____ is denominator.

3. If the numerator is smaller than the denominator, then it is called as a _____ fraction.

1. Fraction represented by the shaded portions in the picture  is _____.

2. If the numerator is greater than the denominator, then it is called as a _____ fraction.

3. $1\frac{1}{4}$ is a _____ fraction.

1. Circle the proper fractions. $\frac{1}{5}, \frac{3}{2}, \frac{4}{7}, \frac{7}{5}, \frac{3}{8}$

2. Circle the improper fractions. $\frac{2}{7}, \frac{6}{5}, \frac{5}{3}, \frac{1}{4}, \frac{8}{5}$

3. Write a proper and an improper fraction with denominator 7.

_____

13.2 Answer the following questions.

1. The decimal form of $\frac{12}{10}$ is _____.
2. The decimal form of $\frac{148}{100}$ is _____.
3. The decimal form of $\frac{7}{2}$ is _____.
4. The decimal form of $\frac{1}{4}$ is _____.

1. The decimal form of $\frac{5}{10}$ is _____.
2. The decimal form of $\frac{3}{4}$ is _____.
3. The decimal form of $\frac{4}{16}$ is _____.
4. The decimal form of $\frac{6}{10}$ is _____.

1. The decimal form of $\frac{3}{10}$ is _____.
2. The decimal form of $\frac{15}{100}$ is _____.
3. The decimal form of $\frac{1370}{1000}$ is _____.
4. The decimal form of $\frac{7864}{10000}$ is _____.

14 Basic operations on fractions

14.1 Answer the following questions.

$\frac{3}{7} + \frac{2}{7} = ?$

$\frac{3}{5} + \frac{4}{5} = ?$

$\frac{1}{4} + \frac{2}{5} = ?$

$\frac{3}{5} + \frac{2}{9} = ?$

$\frac{3}{5} - \frac{1}{5} = ?$

$\frac{5}{9} - \frac{4}{9} = ?$

$\frac{1}{3} - \frac{2}{7} = ?$

$\frac{4}{7} - \frac{1}{11} = ?$

14.2 Answer the following questions.

$\frac{2}{5} \times \frac{3}{6} = ?$

$\frac{4}{7} \times \frac{21}{16} = ?$

$\frac{5}{11} \times \frac{77}{10} = ?$

$\frac{8}{9} \times \frac{72}{64} = ?$

$\frac{4}{9} \div \frac{8}{6} = ?$

$\frac{12}{25} \div \frac{18}{15} = ?$

$\frac{11}{27} \div \frac{44}{45} = ?$

$\frac{18}{35} \div \frac{30}{28} = ?$

15 Measures

Answer the following questions.

Fill in the blanks.

1. 80 mm = _____ cm
2. 1000 mm = _____ m
3. $3\frac{1}{4}$ m = _____ cm
4. 556 cm = _____ m
5. 5000 m = _____ km

Fill in the blanks.

1. 1000 mg = _____ g
2. 1.3 g = _____ mg
3. $2\frac{1}{2}$ kg = _____ g
4. 750 g = _____ kg
5. 4000 g = _____ kg

Fill in the blanks.

1. 1000 *ml* = _____ *l*
2. 2.4 *l* = _____ *ml*
3. $4\frac{3}{4}$ *l* = _____ *ml*
4. 500 *ml* = _____ *l*
5. 3000 *ml* = _____ *l*

I can do

Choose the correct answer. Marks : $10 \times 1 = 10$

1) The simplified form of 50000 + 300 + 70 + 5

a) 53750 b) 50375 c) 53075 d) 57305

2) $48 \times 15 = ?$

a) 620 b) 820 c) 720 d) 7120

3) LCM of 8 and 9

a) 72 b) 89 c) 16 d) 1

4) $135 \div 9 = ?$

a) 12 b) 13 c) 14 d) 15

5) The number 121 is divisible by. _____

a) 5 b) 7 c) 9 d) 11

6) HCF of 13 and 15

a) 13 b) 15 c) 1 d) 195

7) $(-15) \times 7 =$ _____

a) 105 b) -105 c) -8 d) 8

8) $\frac{1}{2} - \frac{3}{7} = ?$

a) $\frac{13}{27}$ b) $\frac{2}{5}$ c) $\frac{1}{14}$ d) $\frac{3}{14}$

9) The decimal form of $\frac{1532}{100}$ is _____

a) 1.532 b) 15.32 c) 153.2 d) 1532

10) 1750 *ml* = _____ *l*

a) $1\frac{4}{3}$ b) $1\frac{1}{2}$ c) $1\frac{1}{4}$ d) $1\frac{3}{4}$

Note

Grade Level Concepts

9

I Can... I Will...

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11 ☆ Date:

10 ☆ Date:

9 ☆ Date:

8 ☆ Date:

7 ☆ Date:

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Note: Colour the stars ☆ after completing each module

Content

1 Rational numbers

Answer the following questions.

1. A rational number is represented in the form of _____
2. 2.6 is a number lies between _____ and _____.
3. The rational form of 0.25 is _____.
4. The collection of all rational numbers is denoted by _____
5. $-\frac{11}{4}$ is a number lies between _____ and _____.
6. The rational form of 1.5 is _____.
7. Any one rational number between 0 and 1 is _____.
8. Is '0', a rational number? _____
9. $-\frac{1}{3}$ is a number lies between _____ and _____.

1) Represent $-\frac{2}{3}$ on the number line.

2) Represent $\frac{3}{4}$ on the number line.

2 Properties of rational numbers - I

Answer the following questions.

Name the property of rational numbers for the following statements:

i) $\left(-\frac{2}{13}\right)+0=0+\left(-\frac{2}{13}\right)=-\frac{2}{13}$ _____

ii) $\frac{2}{9}+\frac{4}{9}=\frac{4}{9}+\frac{2}{9}=\frac{2}{3}$ _____

iii) $\frac{a}{b}+\left(-\frac{a}{b}\right)=\left(-\frac{a}{b}\right)+\frac{a}{b}=0$ _____

iv) $\frac{5}{9}\times\frac{9}{5}=\frac{9}{5}\times\frac{5}{9}=1$ _____

1) Let a, b, c be the three rational numbers where $a=\frac{2}{3}, b=\frac{4}{5}, c=-\frac{5}{6}$
Verify: a + (b + c) = (a + b) + c

2) Let a, b be the two rational numbers where $a=\frac{4}{5}, b=\frac{2}{5}$.
Verify: a – b ≠ b – a

3 Properties of rational numbers - II

Answer the following questions.

Name the property of rational numbers for the following statements:

i) $-\frac{17}{5}\times 9 = 9\times\left(-\frac{17}{5}\right)$ _____

ii) $\frac{4}{5}\times 1 = 1\times\frac{4}{5} = \frac{4}{5}$ _____

iii) $\frac{2}{9}\times\left(\frac{4}{9}\times\frac{1}{9}\right) = \left(\frac{2}{9}\times\frac{4}{9}\right)\times\frac{1}{9}$ _____

iv) $\frac{2}{3} + \frac{-2}{3} = 0 = \frac{-2}{3} + \frac{2}{3} = 0$ _____

1) Let a, b, c be the three rational numbers where $a = \frac{2}{3}, b = \frac{4}{5}, c = -\frac{5}{6}$
Verify: a × (b × c) = (a × b) × c.

2) Let a, b be the two rational numbers where $a = \frac{3}{5}, b = \frac{2}{5}$.
Verify: a ÷ b ≠ b ÷ a

4 Square and square root

Answer the following questions.

1) Find the Square root:

i) $2 \times 2 \times 5 \times 5$

ii) $5 \times 5 \times 7 \times 7 \times 11 \times 11$

2) Find the Square root:

i) $\frac{9}{64}$

ii) 36×81

1) Find the Square root of 36 (through prime factorization).

2) Find the Square root of 144 (through prime factorization).

5 Cube and cube root

Answer the following questions.

1) Find the cube root of 216.

2) Find the cube root of 8×64

1) Find the value of $(-2)^5 \div (-2)^{-3}$

2) Find the value of $(-4)^8 \div (-4)^5$

6 Circle and its parts

Answer the following questions.

Fill in the blanks:

i) _____ is the path traced by a moving point so that its distance from a fixed point is always constant.

ii) If any two points on a circle are joined by a line segment,then the line segment is called a _____

iii) A chord divides a circle into _____ parts.

iv) A chord which passes through the center of a circle is called as a _____.

v) A diameter of a circle divides it into two _____ parts

vi) The longest chord of a circle is _____ .

vii) The radius of a circle of diameter 24 cm is _____.

Fill in the blanks:

i) A part of circumference of a circle is called as _____ .

ii) The plane surface that is enclosed between two radii and the circular arc of a circle is called a _____

iii) The angle formed by a sector of a circle at its center is called the _____

iv) Each part of a circle which is divided by a chord is called a _____.

v) The part which has a smaller arc is called as the _____ and the part which has a larger arc is called as the _____.

vi) The diameter of a circle of radius 10 cm is _____.

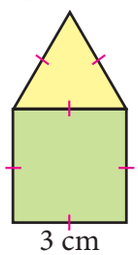
vii) The central angle of each of the sectors is _____.

7 Combined shapes

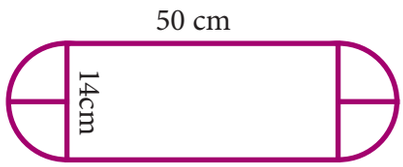
Answer the following questions.

1) Find perimeter of the combined shapes

i)

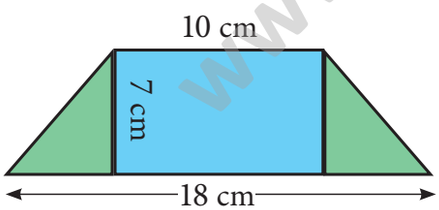


ii)

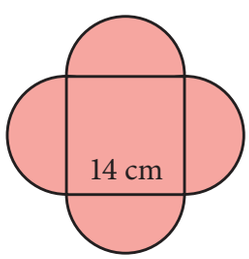


1) Find the area of the combined shapes

i)

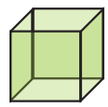
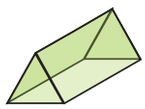


ii)



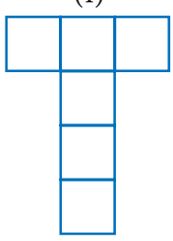
8 Three dimensional shapes

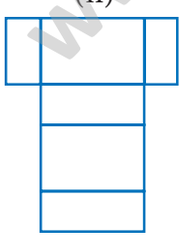
8.1 Complete the table.

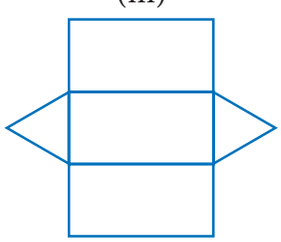
Three dimensional shapes	Number of faces	Number of edges	Number of vertices
			
			
			
			
			

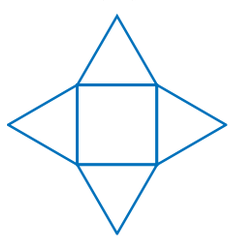
8.2 Answer the following questions.

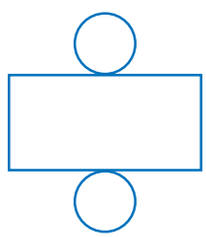
1. Write the names of the three-dimensional shapes represented by the following nets.

(i) 

(ii) 

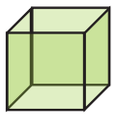
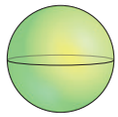
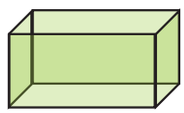
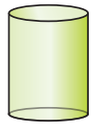
(iii) 

(iv) 

(v) 

_____ _____ _____ _____ _____

2. Write the name of the two dimensional shapes which you get in the cross section of the following three-dimensional shapes

9 Algebra - Basic concepts

Answer the following questions.

1) The coefficient of xy^2, y in $5xy^2 + 7x^2y$.

2) Classify the following as monomial, binomial and trinomial.
$3y - 1$, $z^2 - 5z + 1$, 100, $ab - a - b$, 7mn, $a^2 - b^2$

1) Find the degree of the following polynomial.
$2x^3 + 5x^{3/2} - 7$, $4x^4 - 3x^2 + 5x - 7$, $x^5 + 1$

2) Write the like terms: $-xy^2$, $-4yx^2$, $8x^2$, $2xy^2$, $7y$, $-11x^2$, $-100x$

10 Algebra - Basic operations

Answer the following questions.

1) Add.

i) $(12m^2 + 9m + 5) + (4m^2 - 7m + 10)$ ii) $(8a^2 - 12a + 9) + (5a^2 + 4a - 4)$

2) Subtract.

i) $(24ab - 10b - 13a) - (20ab + 12b + 14a)$ ii) $(5x^2 - 7x + 12) - (3x^2 + 4x + 6)$

3) Multiply. i) $(2x - 3)(4x - 5)$ ii) $(a + b)(2a - 3b)$

4) Divide. i) $\frac{6m^2n}{2mn} \div \frac{3m^2n^2}{mn}$ ii) $\frac{35a^4 + 14a^2}{7a^2}$

I can do

Choose the correct answer. Marks : 10 × 1 = 10

1) Rational numbers are represented as _____

a) N b) W c) Q d) Z

2) What is name of the property for the following statement?

$$\left(-\frac{3}{11}\right)+0=0+\left(-\frac{3}{11}\right)=-\frac{3}{11}$$

a) Closure Property b) Commutative Property
c) Associative Property d) Additive Identity

3) What is name of the property for the following statement?

$$\frac{2}{7}\div\left(\frac{4}{7}\div\frac{1}{7}\right)\neq\left(\frac{2}{7}\div\frac{4}{7}\right)\div\frac{1}{7}$$

a) Closure Property b) Commutative Property
c) Associative Property d) Additive Identity

4) The square root of 169 is

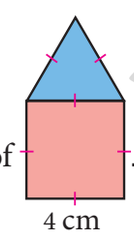
a) 11 b) 12 c) 13 d) 14

5) The cube root of 216 is

a) 4 b) 5 c) 7 d) 6

6) The longest chord of a circle is _____ .

a) Radius b) Diameter c) Circular arc d) Centre

7) Area of 

.

a) $16+\sqrt{3}$ b) $16+4\sqrt{3}$ c) $8+\sqrt{3}$ d) $8+4\sqrt{3}$

8) A cube has _____ faces.

a) 12 b) 8 c) 6 d) 4

9) The degree of polynomial $8x^5 - 3x^3 + 9x - 16$

a) 3 b) 16 c) 5 d) 9

10) $(2a + b)(a - 3b) = ?$

a) $2a^2 - 6ab + 3b^2$ b) $2a^2 - 5ab - 3b^2$ c) $2a^2 + 5ab + 3b^2$ d) $2a^2 + 6ab - 3b^2$

11 Algebraic identities

Answer the following questions.

Expand: i) $(2p+3q)^3$ ii) $(3a-5b)^2$ iii) $(2x+5)(2x-3)(2x+1)$

Evaluate using algebraic identity: i) 108^3 ii) 97^3 ii) 95^3

12 Factorisation

Answer the following questions.

1) Factorise by taking the common factors: $5l^3mn^2 - 35lm^2n + 15l^2mn$

2) Factorise by using algebraic identities $49a^2 + 70ab + 25b^2$

1) Factorise: $x^2 + 12x + 32$

2) Factorise: $x^2 + 15x + 36$

13 Linear equations in one variable

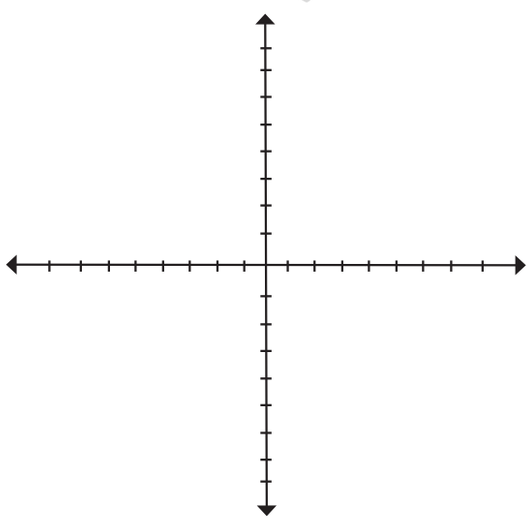
Answer the following questions.

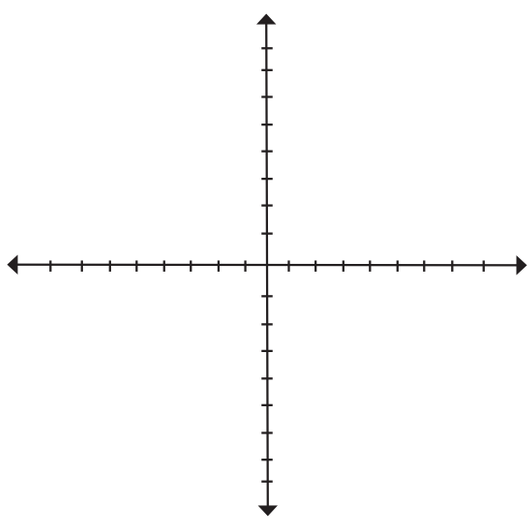
Solve: i) $x+5=6$ ii) $3y+4=10$ iii) $3x+8=x$ iv) $3a+2=\frac{4}{2}a+7$

Plot the following pairs of the points in a graph sheet and draw a straight line.

i) (4,7) and (3, –4)

ii) (–3,1) and (5,5)





14 Similar and congruent triangles

Answer the following questions.

Fill in the blanks:

i) _____ are exactly the same in shape and size.

ii) If two shapes fit exactly over the other, they are called _____

iii) Corresponding sides of similar triangles are _____.

iv) Similar triangles have the same _____ but not necessarily the same size.

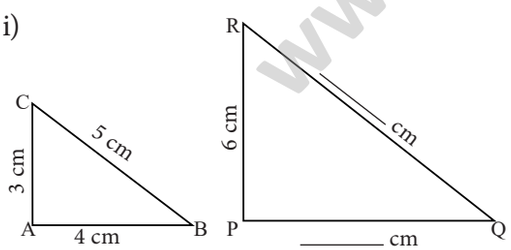
v) In any triangle _____ sides are opposite to equal angles.

vi) The symbol ≡ is used to represent _____ triangles.

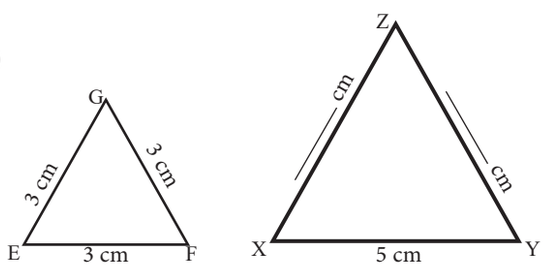
vii) The symbol ~ is used to represent _____ triangles.

1. Find and write the measures of the given similar triangles.

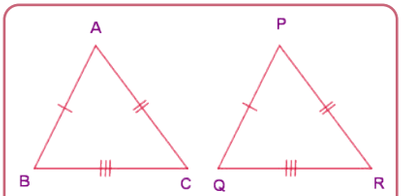
i)



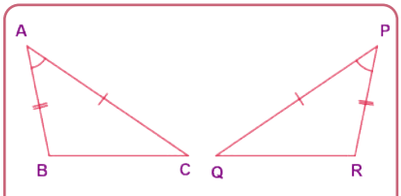
ii)



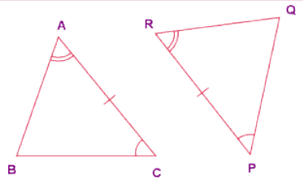
2. Write the congruence property of the given triangles.



AB = PQ, BC = QR, AC = PR



AC = PQ, ∠A = ∠P, AB = PR

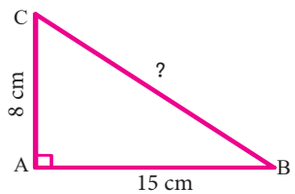


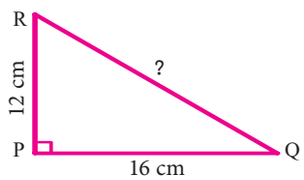
∠A = ∠R, CA = PR, ∠C = ∠P

15 Pythagorean theorem

Answer the following questions.

Find the hypotenuse of the given right angled triangles.

i) 

ii) 

1) Find the hypotenuse of a right angled triangle with sides 9 cm and 12 cm

2) Can a right angled triangle have sides 8 cm, 15 cm and 17 cm?

16 Types of lines on a triangle

Answer the following questions.

Fill in the blanks

i) The point of concurrence of the three medians in a triangle is called its _____.

ii) The point of concurrence of the three altitudes in a triangle is called its _____.

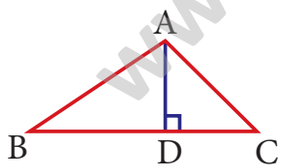
iii) The point of concurrence of the three angle bisectors of a triangle is called as its_____ .

iv) The point of concurrence of the three perpendicular bisectors of a triangle is called as its _____

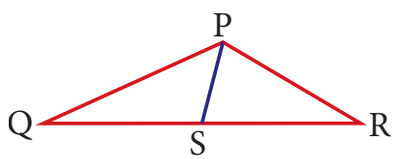
v) The circumcentre of a triangle is denoted by the letter _____.

vi) The centroid of a triangle is denoted by the letter _____

1) Write the types of lines given in each triangle.

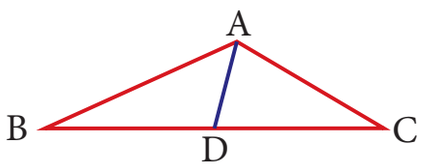


AD =_____



PS =_____

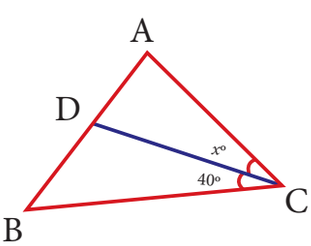
2) Find the answer.



If BD = 4 cm,

DC = _____ cm

BC = _____ cm



If CD is angular bisector, $x°$ = _____

17 Construction of quadrilateral and trapezium

Answer the following questions.

1) If d = 10 cm, h_1 = 9 cm and h_2 = 7 cm of a quadrilateral, find its area.

1) If d = 15 cm, h_1 = 11 cm and h_2 = 13 cm of a quadrilateral, find its area.

1) If height of the trapezium is 5 cm, parallel sides are in 7 cm and 5 cm respectively, find its area.

2) If height of the trapezium is 7 cm, parallel sides are in 9 cm and 11 cm respectively, find its area.

18 Construction of special quadrilaterals - I

Answer the following questions.

1) If b = 8 cm and h = 5 cm of a parallelogram, find its area.

2) If b = 12 cm and h = 7 cm of a parallelogram, find its area.

1) If l = 7 cm and b = 6 cm of a rectangle, find its area.

2) If l = 13 cm and b = 8 cm of a rectangle, find its area.

19 Construction of special quadrilaterals - II

Answer the following questions.

1) Find the area of a square with side length 15 cm.

2) Find the area of a square with side length 18 cm.

1) If $d_1 = 6$ cm and $d_2 = 7$ cm of a rhombus, find its area.

2) If $d_1 = 9$ cm and $d_2 = 8$ cm of a rhombus, find its area.

20 Statistics

Answer the following questions.

Fill in the blanks:

i) The difference between the largest value and the smallest value of the given data is

ii) If 3, 5, 15, 10, 20 and 18 are the data, then range is _____.

iii) The upper limit of the class interval (15 - 25) is _____

iv) The difference between the upper limit and the lower limit of the class is known as _____ .

v) The lower limit of the class interval (30 – 40) is _____

1) Construct the frequency table for given.

3, 4, 2, 4, 5, 6, 1, 3, 2, 1, 5, 3, 6, 2, 1, 3, 2, 4

Data						
Frequency						

2) The marks (out of 100) obtained by 50 students in mathematics are given:

43, 88, 25, 93, 68, 81, 29, 41, 45, 87, 34, 50, 61, 75, 51, 96, 20, 13, 18, 35,25, 77, 62, 98, 47, 36, 15, 40, 9, 25, 39, 60, 37, 50, 19, 86, 42, 29, 32, 61,45, 68, 41, 87, 61, 2, 67, 30, 54, 8.

Make a frequency distribution table and class interval for the above detail.

I can do

Choose the correct answer. Marks : 10 × 1 = 10

1) Expansion of $(4x - 3y)^2$.

a) $16x^2 + 24xy + 9y^2$ b) $16x^2 + 24xy - 9y^2$ c) $16x^2 - 24xy + 9y^2$ d) $16x^2 - 24xy - 9y^2$

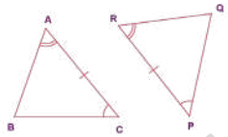
2) Factors of $x^2 + 17x + 72$ are.

a) $(x + 9)(x - 8)$ b) $(x - 9)(x + 8)$ c) $(x + 9)(x + 8)$ d) $(x - 9)(x - 8)$

3) Solution of $x - 7 = 15$ is

a) $x = 8$ b) $x = 22$ c) $x = 7$ d) $x = -8$

4) What is the congruence property of the given triangles?



$\angle A = \angle R$, $CA = PR$, $\angle C = \angle P$

a) A–S–A b) S–A–S c) S–S–S d) R–H–S

5) The hypotenuse of a right angled triangle with side measures of 15 cm and 20 cm.

a) 23 cm b) 24 cm c) 25 cm d) 26 cm

6) Which letter is denoted by the orthocentre of a triangle?

a) G b) H c) I d) S

7) The point of concurrence of the three perpendicular bisectors of a triangle is called as its _____ .

a) Circumcentre b) incentre c) Orthocentre d) Centroid

8) If d = 12 cm, h_1 = 8 cm and h_2 = 6 cm of a quadrilateral, then its area is.

a) 48 sq.cm b) 84 sq.cm c) 72 sq.cm d) 86 sq.cm

9) If d_1 = 8 cm and d_2 = 5 cm of a rhombus, then its area is.

a) 40 sq.cm b) 20 sq.cm c) 60 sq.cm d) 70 sq.cm

10) If 7, 9, 12, 14, 19 and 22 are the data, then range is.

a) 7 b) 22 c) 15 d) 14

Note

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Elegant Maplitho paper.
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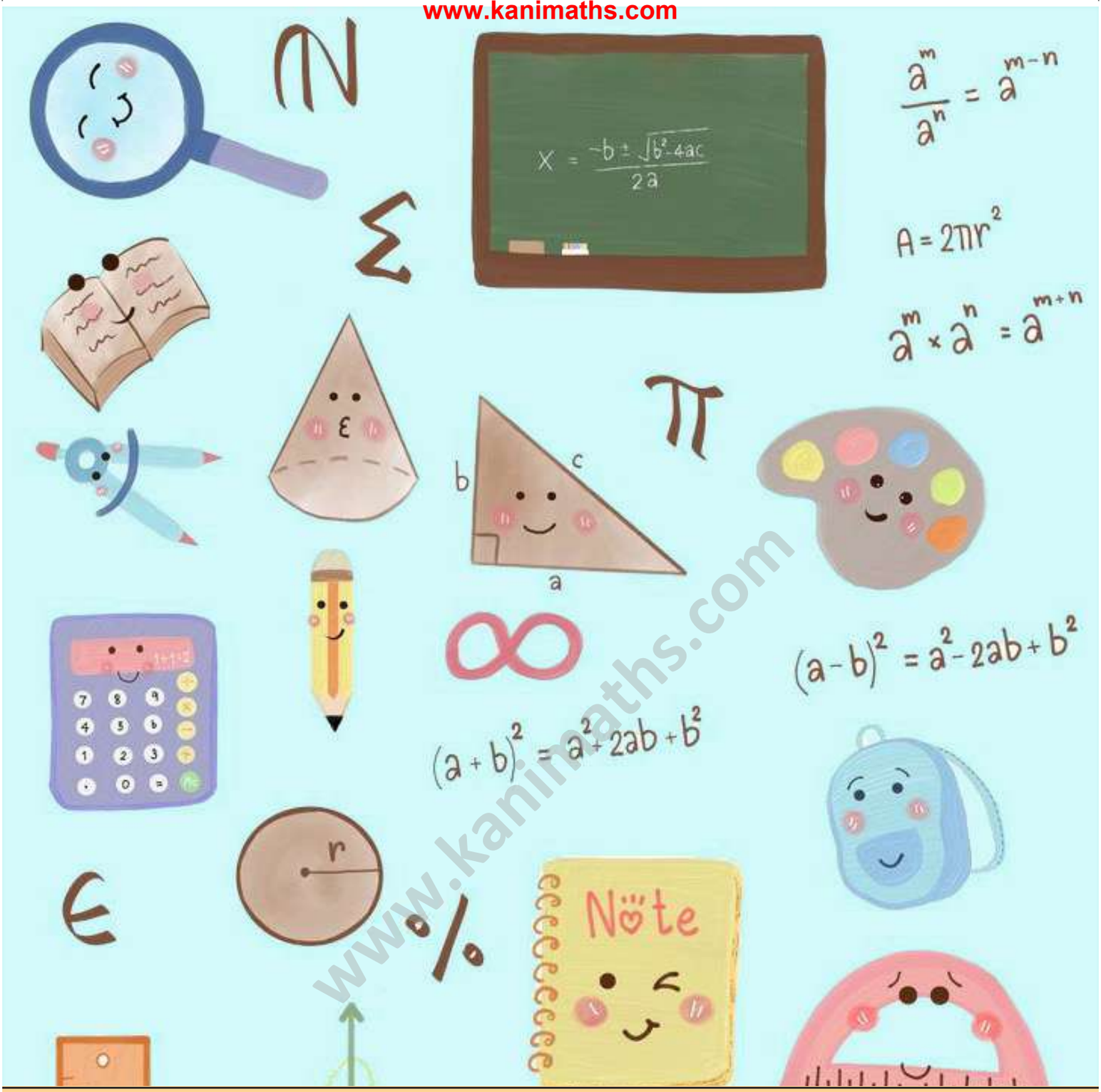

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