INTERVAL
Individual Tuition Concept

Team INTERVAL
Foundation
Course

MATHS

Level - Basic

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1 - Write the backward counting?

a) From 50 to 40 (by 1s)

b) From 200 to 150 (by 10s)

c) From 90 to 60 (by 5s)

d) From 600 to 540 (by 10s)

2 - Word problems

a) Riya had ₹100. She spent ₹10 every day. Count backward and write how much money she had after 3 days.

b) A rocket countdown starts from 10. Write the backward counting till liftoff (0).

3 - Fill in the blanks?

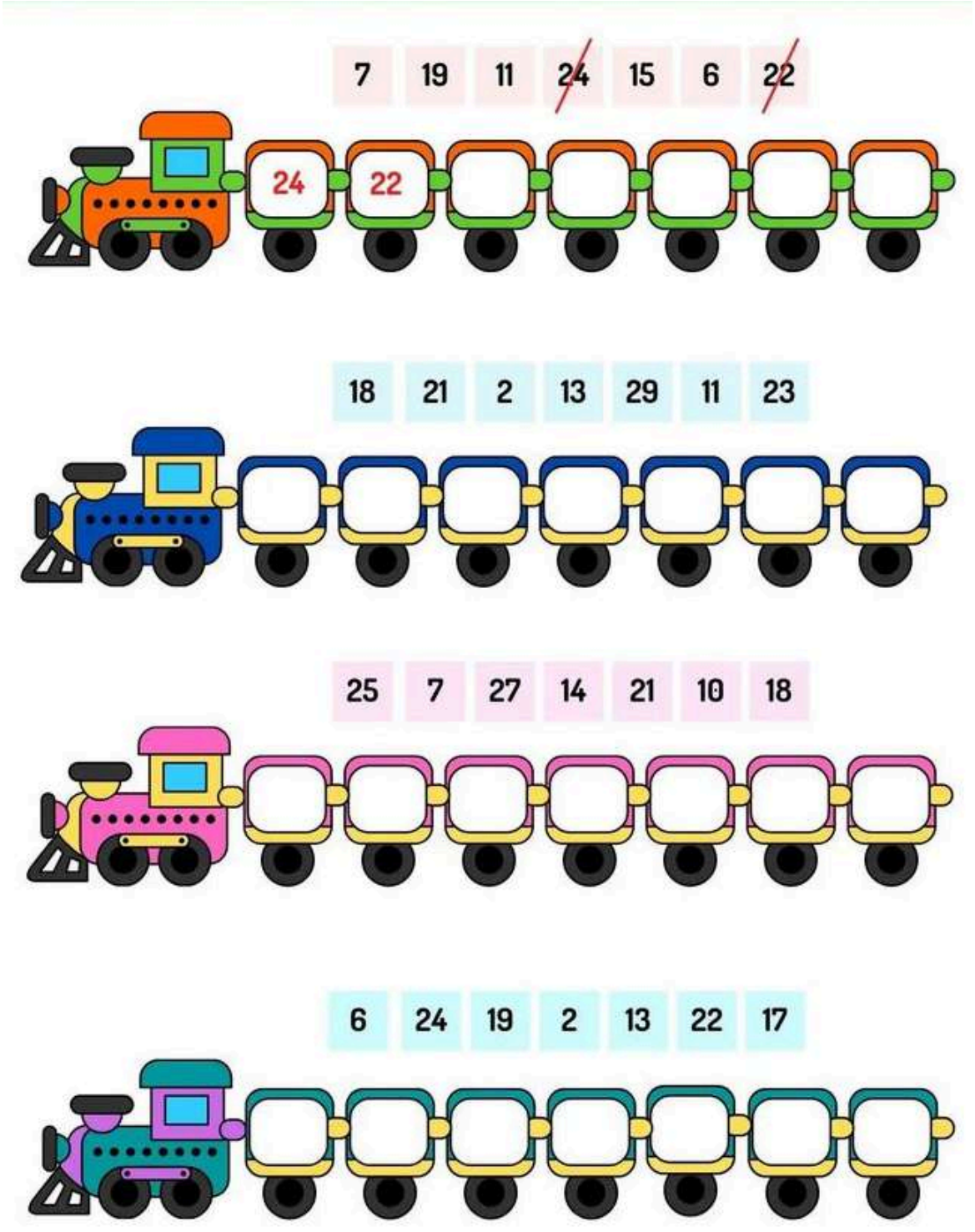
a) 45 ___ 54
b) 128 ___ 120
c)300 ___ 300
d) 76 ___ 67
e) 150 ___ 200

4- Arrange in order?

a) Arrange in ascending order: 56, 89, 34, 72

b) Arrange in descending order: 120, 150, 115, 140

5 - Write the following numbers on the wagons in order from biggest to smallest?



6 - Write the place value and place under lined digit?

	Place Value	Value
4<u>8</u>6	tens	80
9<u>2</u>		
<u>5</u>71		
8<u>1</u>2		
1 <u>6</u>93		
<u>4</u> 257		

7 - Identify odd or even?

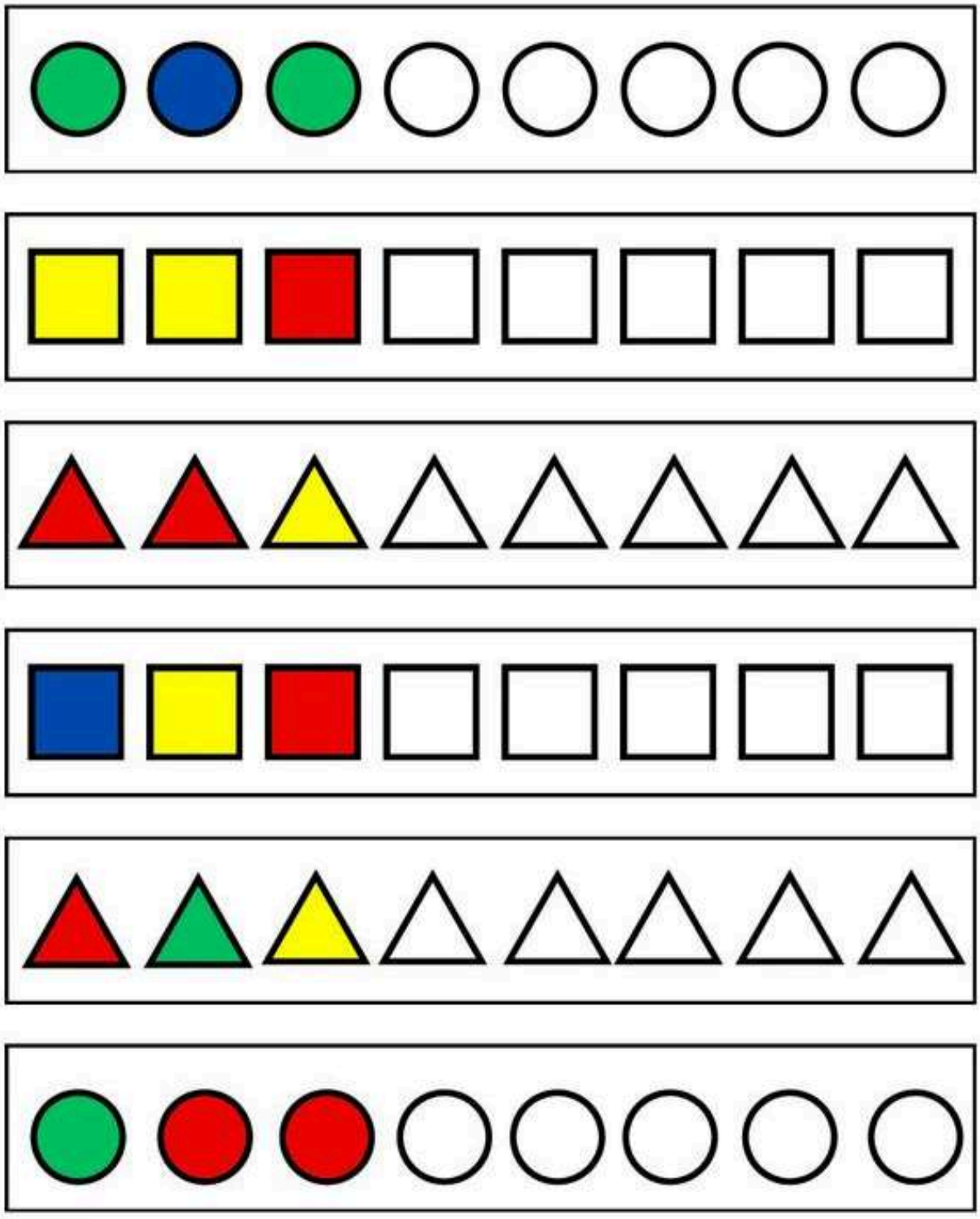
a) Identify whether the following numbers are odd or even:

a) 34 b) 65 c)89 d) 99 e) 24

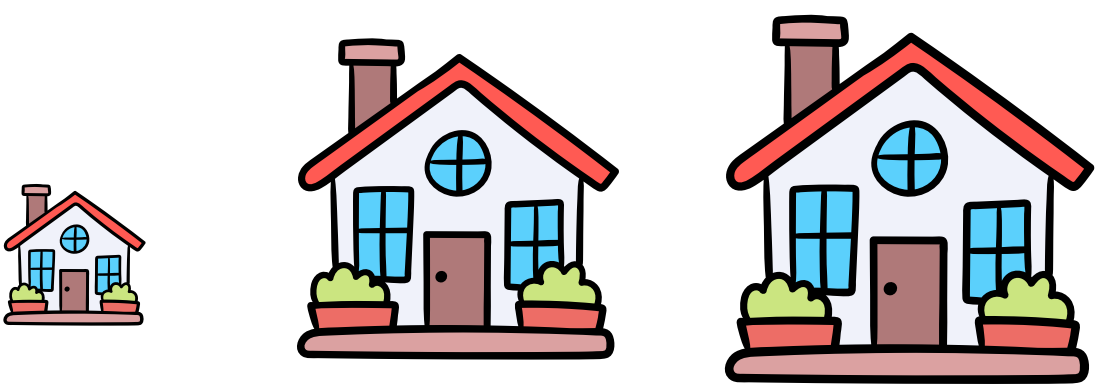
b) Write all even numbers between 21 and 31

c) Write all odd numbers between 90 and 100

8 - Finish the pattern



9 - Draw the picture that comes next in the growing pattern?



10 - Fill in the missing numbers?

□ + 6 = 9	2 + □ = 10
4 + □ = 8	□ + 1 = 7
□ + 7 = 12	3 + □ = 12
8 + □ = 11	□ + 7 = 9
□ + 3 = 10	6 + □ = 8
4 + □ = 12	□ + 9 = 13
□ + 10 = 14	5 + □ = 11

11 - Mixed Addition Word Problems?

a) A box has 9 red balls and 47 blue balls. How many balls are there in total?

b) Riya has 123 stickers. Meera gave her 76 more. How many stickers does she have now?

c) A bus carries 56 adults and 23 children. How many people are on the bus altogether?

d) There are 345 books in one shelf and 78 books in another. How many books are there altogether?

e) A farmer collected 215 oranges on Monday and 178 on Tuesday. How many oranges did he collect in total?

12 - solve it.

a) 900 – 675 = _____

b) 8,000 – 3,275 = _____

c) 4,205 – 829 = _____

d) 3,000 – 1,748 = _____

13 - Word problem?

a) Riya had 15 apples. She gave 7 to her friend. How many apples are left?

b) There were 42 birds on a tree. 18 flew away. How many birds are still on the tree?

c) A shop had 256 candies. 123 were sold. How many candies remain?

d) Tom collected 345 stamps. He gave 120 to his brother. How many does he have now?

e) A library had 500 books. 234 books were borrowed. How many books are left in the library?

14 - Write the multiplication table of 3& 4?

15 - word problems?

a) One pen costs ₹24. What is the cost of 6 pens?

b) A bus has 42 seats. How many seats are there in 3 such buses?

c) One packet has 28 chocolates. How many chocolates are there in 5 such packets?

d) A shopkeeper sold 36 apples each day for 7 days. How many apples did he sell in all?

16 - Calculate it?

19 × 22	23 × 64	37 × 15	54 × 55
14 × 64	71 × 82	98 × 43	15 × 16
27 × 36	62 × 74	83 × 23	48 × 91

17 - Match the following?

$6 \div 3 =$ ☐ 3

$18 \div 6 =$ ☐ 8

$21 \div 7 =$ ☐ 2

$20 \div 2 =$ ☐ 4

$64 \div 8 =$ ☐ 10

$12 \div 1 =$ ☐ 3

$20 \div 5 =$ ☐ 12

18 - Word problems?

a) 96 apples are shared equally among 8 baskets. How many apples in each basket?

b) 225 students are divided equally into 5 groups. How many students per group?

c) 360 chocolates are divided among 9 children. How many does each get?

d) A shopkeeper has 512 toffees and packs 8 in each packet. How many packets can he make?

e) 624 mangoes are kept in baskets with 6 mangoes each. How many baskets are needed?

19 - Write the fraction for:

a) 2 shaded parts out of 5 parts

b) 6 shaded parts out of 8 parts

20 - Draw a circle and shade:

a) Half of it

b) One-third of it

c) One-fourth of it

21 - Fill in the blanks.

a) A fraction that has equal numerator and denominator represents the number _____.

b) Fractions with same denominators are called _____ fractions.

c) Fractions with different denominators are called _____ fractions.

22 - Simplify ?

$\frac{2}{6} \times \frac{1}{2} = \frac{\quad}{12} = \square$

$\frac{2}{4} \times \frac{2}{4} = \square = \frac{\quad}{4}$

$\frac{2}{5} \times \frac{1}{4} = \frac{\quad}{20} = \square$

$\frac{1}{3} \times \frac{3}{4} = \square = \square$

$\frac{3}{7} \times \frac{1}{3} = \square = \square$

23- Write the decimal form?

a) 3 ones and 5 tenths = _____

b) 7 ones and 2 tenths = _____

c) 9 ones and 8 hundredths = _____

d)5 ones and 6 tenths = _____

e)4 ones and 25 hundredths = _____

24- Convert the fraction into decimal.

a) ½ = _____

b) ¼ = _____

c) ¾ = _____

d) ³⁄₁₀ = _____

e) ⁷⁄₁₀₀ = _____

25 - Find the product of 3.5 × 0.002.

27 - Divide 12.6 by 0.03.

28 - Find percentage of each number?

10% of 70 = _____

65% of 20 = _____

15% of 400 = _____

63% of 100 = _____

10% of 50 = _____

29 - Word problems

a) Find the average of 10, 20, and 30.

b) The marks obtained by Riya in 3 tests are 60, 70, and 80. What is her average score?

c) If the average of 5, 10, and 15 is 10, what is the total sum of the numbers?

d) The average of 4 numbers is 25. Find their total sum.

e) Find the average of first five natural numbers.

30 - Find 12.5% of 640.

31 - Write the following Roman numerals in numbers:

a) XLV b) LXII c) XCIX d) LXXX e) XXXVII

32 - Write the following in Roman numerals:

(a) 19

(b) 48

(c) 76

(d) 99

(e) 125

33 - Solve equations.

$12^2 + 9 =$ $2^3 - 10 =$

$8^2 - 6 =$ $5^2 + 25 =$

$5^2 + 5 =$ $2^3 - 12 =$

$10^2 - 10 =$ $3^3 + 3 =$

34 - Check whether the following numbers are perfect squares:

(a) 225

(b) 320

(c) 625

(d) 500

35 - Find the cube root of:

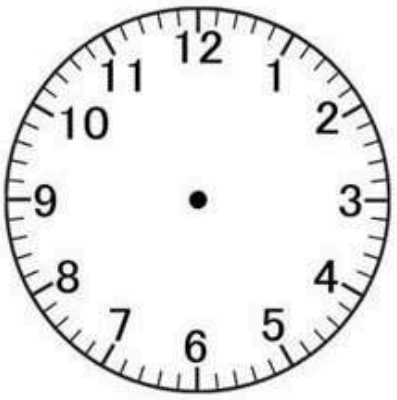
(a) 27

(b) 125

(c) 1000

(d) 0.008

36 - Shown the time on each clock.



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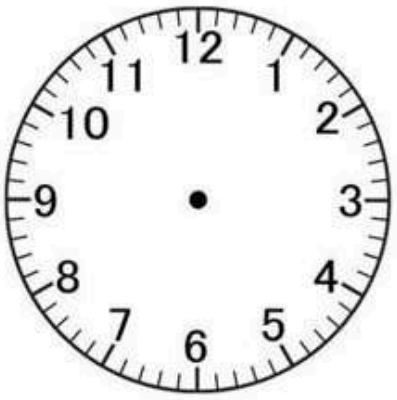

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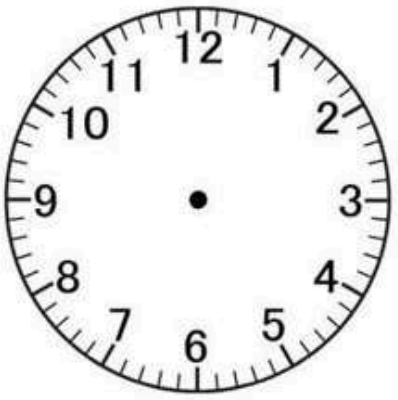

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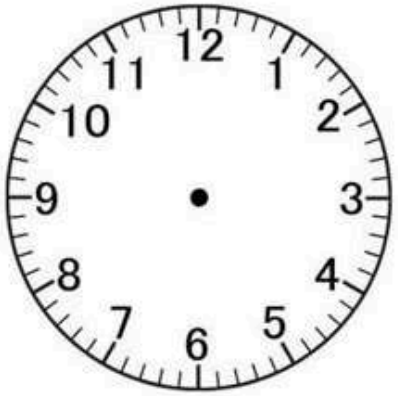

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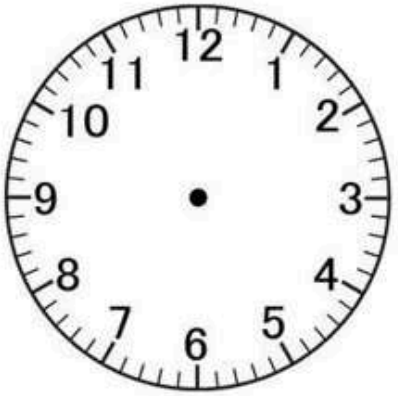

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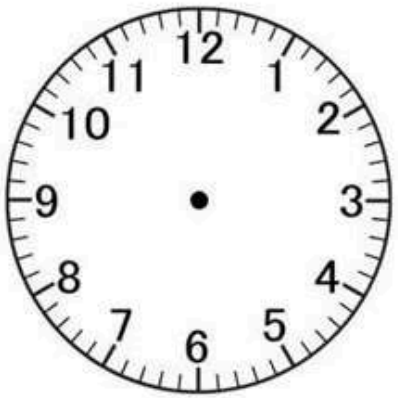

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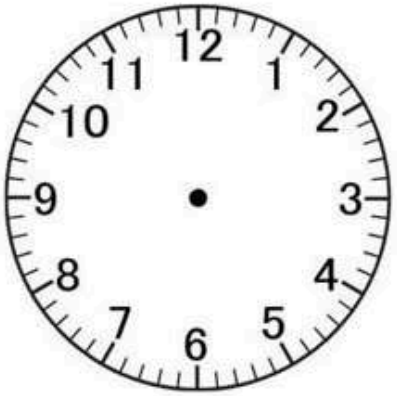

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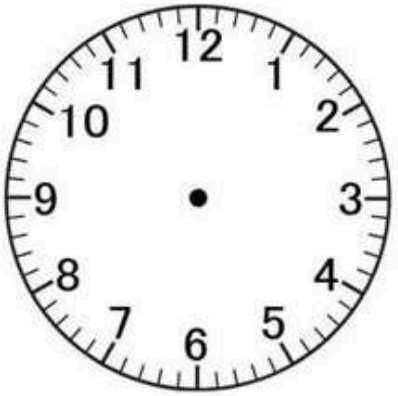

1:00

37 - True or False.

a) 3:00 A.M. means it is afternoon. ( )

b) 12:00 noon is written as 12:00 P.M. ( )

c) 12:00 midnight is written as 12:00 A.M. ( )

d) We go to school at 9:00 P.M. ( )

e)The sun rises in the A.M. ( )

38 - Add:

(a) 2 h 35 min 40 s + 1 h 50 min 30 s

(b) 3 h 45 min + 2 h 55 min

39 - Write the days of the week in correct order.

Sunday	1
Friday	2
Saturday	3
Monday	4
Tuesday	5
Wednesday	6
Thursday	7

40 - Fill in the blanks.

a) There are ____ months in a year.
b) The shortest month of the year is ____.
c) A leap year has ____ days.
d) The year comes after ____ and before ____.

41 - Word problems?

a) How many times does the 29th of February occur between the years 2000 and 2100?
b) How many Sundays are there in a leap year?
c) The calendar for the year 2017 is the same as that for which of the following years?
(a) 2023
(b) 2024
(c) 2028
(d) 2029

42 - Word problems?

a) Riya bought a pencil for ₹8.50 and an eraser for ₹4.25. How much did she spend in total?

b) Arun had ₹100. He bought a pen for ₹25.75 and a notebook for ₹35.50. How much money is left?

43- Prepare a bill for the given items.

4 Tomatoes, each tomato costs Rs.18.
7 Ladies finger, each Ladies finger costs Rs.20
9 cabbage, each cabbage costs Rs.34

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MATHS

Level - Intermediate

CATEGORY –4

1 - Convert the fraction 1/2 into a decimal.

2 - Convert 9 ÷ 20 to a decimal using long division.

3 -A bottle is filled 3/20 of its capacity. Convert this to decimal by adjusting the denominator.

4 - Write all prime numbers between 40 and 60.

5 -Identify the smallest composite number.

6 - Answer the following questions?

a) What is prime factorization?
b) Apply the division method to check whether 49 is prime or composite.
c) pictorize the factor - tree-method of 36.

7 - Use the multiplication method to find all factors of 48.

8 - Find two numbers between 30 and 60 that have exactly 6 factors using multiplication and division checks.

9 - Find the LCM of 16 and 40 using prime factorization, common multiples.

10 - Find the HCF of 20, 60, and 90 by prime factorization, common factors.

11 - Write the ratio of 6 : 9 in simplest form.

12 - Determine whether 8, 12, 18, 27 form a proportion.

13 - Find the value of 10^4.

14 - Simplify: $2^3 \times 2^4$.

15 -

$6^3 - 3 =$

$5^4 + 9 =$

$7^3 - 12 =$

$12^2 + 9 =$

$8^2 - 6 =$

$5^2 + 5 =$

$10^2 - 10 =$

$5^3 + 15 =$

$3^2 - 11 =$

$4^2 + 12 =$

$2^3 - 10 =$

$5^2 + 25 =$

$2^3 - 12 =$

$3^3 + 3 =$

16 - Convert 450 cm into meters.

17 - A map uses the scale 1 cm = 50 m.
What actual distance does 12.6 cm on the map represent in meters

18 - Add: 3 km 250 m + 4 km 725 m

19 - Convert 4500 g into kg.

20 - Word problems?

a) A shopkeeper has 15 kg 250 g of rice. He sells 7 kg 875 g.
How much rice is left?
b) A parcel weighs 2.75 kg. Another parcel weighs 1350 g.
What is the total weight?
c) A student carries books weighing 3.2 kg, and her water bottle weighs 750 g.
Find the total weight she carries.

21 -

a) Convert 2500 mL into litres.

b) Convert 4.75 L into millilitres.

22 - Subtract: 2.5 L – 1.225 L

23 - Word problems?

a) A jug contains 2.5 L of juice. A child drinks 350 mL.
How much juice is left?
b) A petrol tank holds 35 L of petrol. It already contains 12.75 L.
How much more petrol can it hold?
c) A milkman has 18 L 750 mL of milk. He sells 7 L 325 mL.
How much milk remains?
d) Three bottles contain 1.25 L, 750 mL, and 2.6 L of water.
What is the total volume of water?

23 - Find the perimeter of a square with side 8 cm.

24 - The sides of a triangle are increased by 2 cm each. How much does the perimeter change?

25 - Word problems?

a) A farmer fences a square field of side 25 m. How much wire is needed?
b) A rectangular playground is 40 m long and 25 m wide.
c) Find the total cost of fencing it at ₹12 per metre.
d) A triangle park has sides 20 m, 18 m, and 25 m.
Find the perimeter of the park.

26 - Answer the following questions?

a) Find the area of a triangle with base 20 cm and height 15 cm.
b) A triangle has sides 13 cm, 14 cm, 15 cm. Find its area using Heron's formula.
c) If a triangle has area 60 cm^2 and base 10 cm, find its height.

27 - Draw the graph of $x - 2y = 4$.

28 - Solve:
a) $2x + y = 7$
b) $x = 3y - 1$

29 - Solve the pair of equations using elimination

$3x+2y=16$
$3x-y=1$

30 - Word problem?

a) Riya borrowed ₹8,000 from a bank at 9% per annum.
How much interest will she pay in 3 years?

b) Ajay deposited ₹12,000 in a savings account for 2 years at 7.5% simple interest.
Find the total amount he will receive.

c) Find the compound interest on ₹4,000 at 10% per annum for 2 years.

d) Principal = ₹5,000, Rate = 8% per annum, Time = 3 years.
Find CI and amount.

31 - Draw the bar graph below shows the marks obtained by a student in different subjects:

Maths – 78, Science – 84, English – 69, Social Science – 75, Hindi – 88.

Questions:

1. In which subject did the student score the highest marks?
2. What is the total marks obtained in all subjects?
3. What is the difference between marks in English and Science?
4. Calculate the average marks.
5. Which subject's marks are closest to the average?

32 - Word problem?

a) A cricketer scores the following runs in 6 matches:
35, 60, 42, 55, 80, 48.
Find the mean score.

b) Find the median of: 3, 7, 9, 12, 15, 18, 20

c)A shop sold the following number of shirts per day in a week:
20, 25, 20, 30, 25, 25, 32
Find the mode.

32 - Given the following data about pets owned:

Pet	Number
Dogs	14
Cats	10
Rabbits	6
Birds	12

a) Create a bar graph using suitable scale.
b) Which pet is most owned?
c) Which pet is least owned?

33 - Record of cars passing a tollgate in one hour:

Red – 18
White – 23
Black – 11
Blue – 17
Others – 6

a) Make a tally-frequency table.
b) How many cars passed in total?
c) Which colour was most common?

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MATHS

Level - Advance

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1- State whether the statement is true or false:
The sum of two negative integers is always positive.

2 - How many integers lie between −3 and 3?

3 - State the rule for subtracting an integer from another integer.

4 - Verify the distributive property: 5 × (−3 + 2).

5 - Solve the equations?

a) (−8) + 12 × (−3)
b) 45 − [6 + (−14)]
c) (−20) ÷ 5 + 7
d) 18 − (−4) × 6

6 - Answer the follwing questions?

a) Define a rational number.
b) Write any two examples of rational numbers.

7 - Arrange the following in ascending order: −3/4, 1/2, −1/8, 3/5

8 - How will you represent a rational number between 0 and 1 on the number line?

9 - Write 12/20 in standard form?

10 - Show that rational numbers are closed under multiplication.

11 - Word problems?

a) A rope is 3/4 m long. Another rope is 5/6 m long. Find the total length.

b) A tank has −5/8 litre of water deficit. If 3/4 litre of water is added, find the final amount.

c) A cyclist travels 2/3 km forward and then 5/6 km backward. Find the net distance travelled?

12 - Define an algebraic expression.

13 - Expand using identity?

a) $(x + 7)(x - 7)$

(b) $5p + q)(5p - q)$

c) $2a - 3b)(2a + 3b)$

14 - Answer the following questions?

a) Define a polynomial.

b) Write one example each of: (a) Monomial (b) Binomial (c) Trinomial

c) How many terms are there in the polynomial $7x^2 - 5x + 9$?

15 - Word problems?

a) The length of a rectangle is $(2x + 3)$ m and the breadth is $(x - 1)$ m. Write a polynomial representing its area.

b) The side of a square is $(x + 4)$ cm. Write a polynomial for its perimeter.

16 - Identify the next two terms in the following linear sequences:

a) 2, 5, 8, 11, ___, ___

b) 15, 13, 11, 9, ___, ___

c) −4, −1, 2, 5, ___, ___

17 - Write the first four terms of an arithmetic sequence when:

a) $a = 2, d = 6$

b) $a = -5, d = 4$

18 - Find the value of n if:

a) $a = 5, d = 3$ and $a_n = 47$

b) $a = 2, d = 4$ and $a_n = 62$

19 - Answer the fllowing questions?

a) Define a triangle.

b) Name the triangle based on angles:

a) All angles less than 90°

b) One angle equal to 90°

c) One angle greater than 90°

20 - If the sides of a triangle are 3 cm, 4 cm, and 7 cm, check whether a triangle is possible. Give reason.

21 - Explain why an equilateral triangle is always an acute-angled triangle.

22 - Find the missing side using Pythagoras theorem:

a) Base = 9 cm, Height = 12 cm

b) Hypotenuse = 13 cm, one side = 5 cm

23 - Fill in the blanks:

a) The distance from the centre to the circle is called the _____.

b) All radii of the same circle are _____ in length.

c) A diameter is equal to _____ times the radius.

24) What happens to a chord when its distance from the centre increases?

25 - State whether the following statements are True or False:

a) Concentric circles have the same radius.

b) Concentric circles have a common centre.

c) Concentric circles can intersect each other.

26 - If two circles have radii 5 cm and 5 cm but different centres, are they congruent? Give reason.

27 - Name the position of a point if its distance from the centre of a circle is:

a) Less than the radius

b) Equal to the radius

c) Greater than the radius

28 - Name the following solid (3D) shapes:

a) Shape with 6 rectangular faces

b) Shape with 2 circular faces and 1 curved surface

c) Shape with 1 circular base and a curved surface

29 - Distinguish between:

a) Cube and Cuboid

b) Cone and Cylinder

30 - Write the formula for:

a) Total surface area of a cube

b) Curved surface area of a cylinder

c) Total surface area of a cuboid

d) Curved surface area of a cone

e) Surface area of a sphere

31 - Find the volume of:

a) A cylinder of radius 7 cm and height 14 cm

b) A cone of radius 7 cm and height 24 cm

c) A sphere of radius 7 cm

32 - The radius of a spherical ball is 14 cm. Find:

a) Its surface area

b) Its volume

33 - What is trigonometry?In a right-angled triangle:

a) Which angle is called the reference angle?

b) Which side is called the hypotenuse?

34 - True or False:

a) sin θ = opposite / hypotenuse

b) cos θ = hypotenuse / adjacent

c) tan θ = opposite / adjacent

35 - Find the value of:

a) sin 30°

b) cos 60°

c) tan 45°

36 - If sin θ = 5/13, find:

a) cos θ

b) tan θ

(θ is an acute angle)

37 - Fill in the blanks:

a) The set of all possible outcomes of a random experiment is called the _____.

b) A single performance of an experiment is called a _____.

c) An event is a _____ of the sample space.

38 - How many outcomes are there in the sample space when:

a) A coin is tossed twice?

b) A die is thrown once?

39 - Find the probability of:

a) Getting a head when a coin is tossed

b) Getting an odd number when a die is thrown

c) Getting a red ball from a bag containing 3 red and 5 blue balls

40 - If P(E) = 0.35, find P(not E).