पुथना International School

Shree Swaminarayan Gurukul, Zundal

Class -IV

MATH-MAGIC

study materials

Ch-8

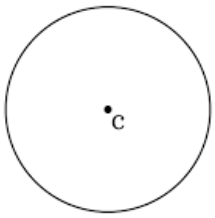
Carts and Wheels

❖ Summary:

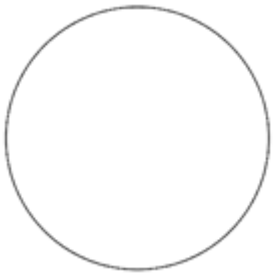
- **Introduction**
- **Find the missing radius or diameter in the given table**
- **Fill in the blanks.**
- **Look at the figure and answer the following questions.**
- **Using rounder draw a circle of the given radius.**

❖ Introduction (https://www.youtube.com/watch?v=6TDsT0enyxs)

- **Circle: A circle is a round shaped figure that has no corners or edges. A circle is a closed curve.**
- **The fixed point is called the centre of the circle.**

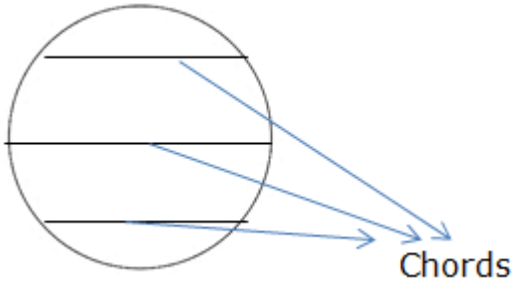


- **Circumference: The total length of the boundary of the circle is called circumference of the circle.**



- **Chord: A chord is a line segment joining any two points on the circle.**

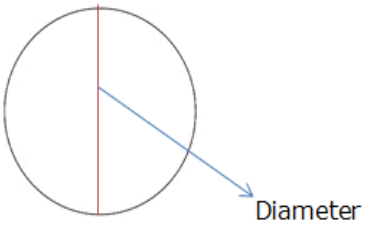
Step: If we fold any part of the circle now. The pleat formed is called the chord of the circle.



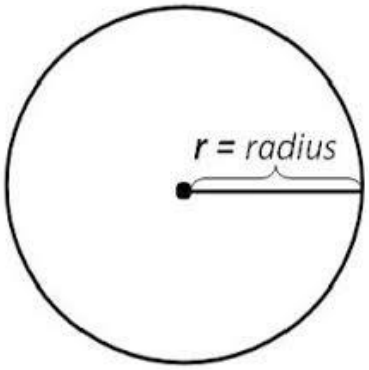
- **Diameter: The longest chord which pass through the centre is called diameter**

Step: Fold the cut circle into half. We will get semicircle.

Now unfold the semicircle and see the plat formed is called the diameter of circle.

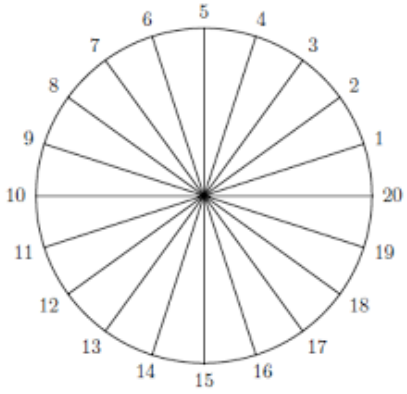


- Radius: **The line segment joining the centre of the circle to any point on the circle is called the radius of the circle.**



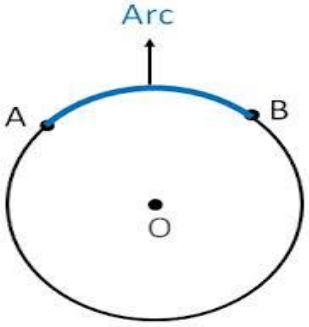
- **Radii of a circle are of equal lengths.**

- **Radii is plural of radius. (example)**



- All diameter of the given circle is equal in length. Each diameter is formed of two radii. Diameter is twice the length of the radius.

- Arc – Any part of the circumference of the circle is called arc.



- **Diameter** = 2 x radius
- **Radius** = Diameter/2

Example 1: Radius = 6 cm. Find diameter

Diameter = 2 x 6 cm

= 12 cm

Example 2: Diameter = 18 cm. Find radius

Radius = 18/2 (division)

= 9 cm

- Find the missing radius or diameter in the given table.

Sr. no	Radius	Diameter
1	4 cm	2 x 4 cm = 8 cm
2	12 cm / 2 = 6 cm	12 cm
3	3 cm	2 x 3 cm = 6 cm
4	16 cm / 2 = 8 cm	16 cm
5	5 cm	2 x 5 cm = 10 cm
6	4 cm / 2 = 2 cm	4 cm

- **Fill in the blanks.**

a Diameter is the longest chord of the circle.

b A circle is a simple closed curve shape.

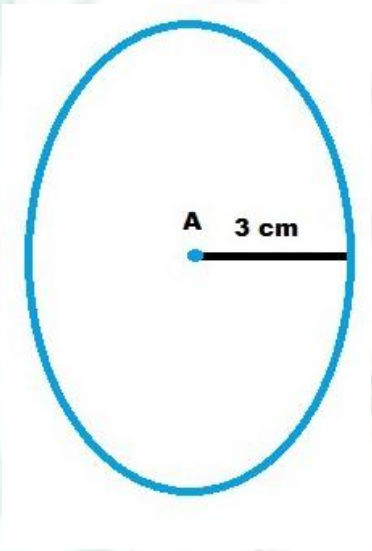
c Diameter divide the circle into two equal halves.

d The length of the boundary of a circle is called circumference of a circle.

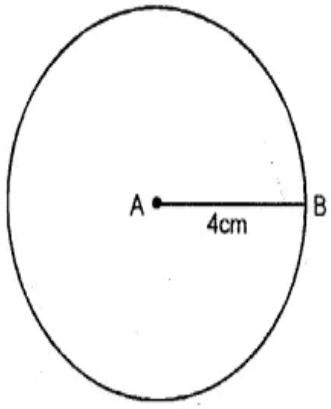
e Line segment joining any two points on the edge of the circle is called chord.

- **Using rounder draw a circle of the given radius.**(https://www.youtube.com/watch?v=BfR-mphcTvE)

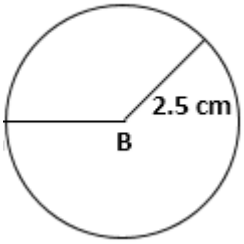
a) 3cm



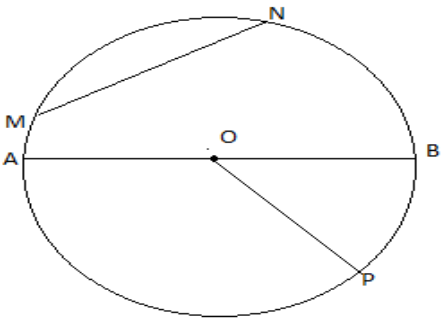
b) 4 cm



c) 2.5 cm



- **Look at the figure and answer the following questions.**



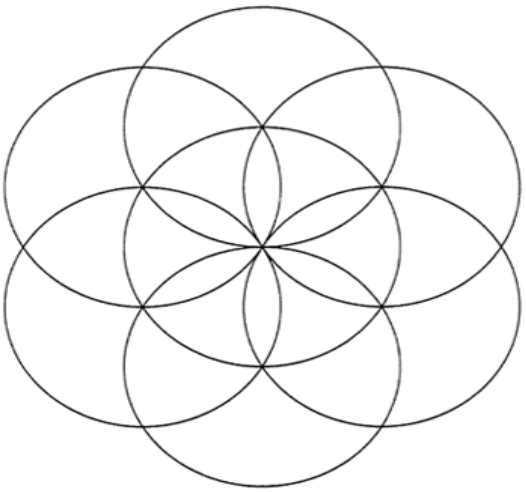
a. Center of the circle-_____

b. Chord of the circle-_____

c. Radii of the circle-_____

d. Diameter of the circle-_____

➢ Activity : make any design using only rounder or compass. For eg



पुष्पना International School

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Class -IV

MATH-MAGIC

study materials

CH- 9

Halves and Quarter

Summary:

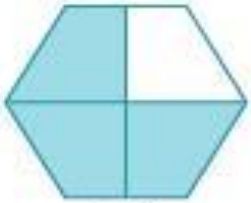
- **Introduction of fraction**
- **How to read and write fractions?**
- **Fill in the blanks.**
- **Equivalent Fractions**
- **Ways to find whether fractions are equivalent or not: -**

Exercise: Are these fractions equivalent?

- **Write the next 3 equivalent fraction of the below numbers.**
- **Addition of Like Fractions**
- **Subtraction of Like Fractions**
- **Word problem.**

1/2

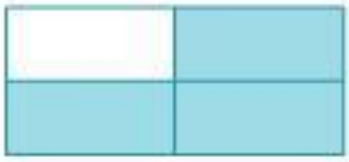
3/4



3/4

1/4

1/2

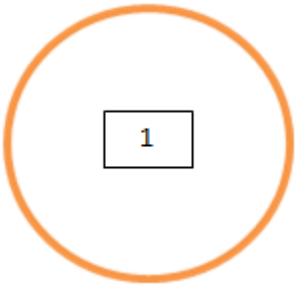


3/4

- # Introduction of fraction

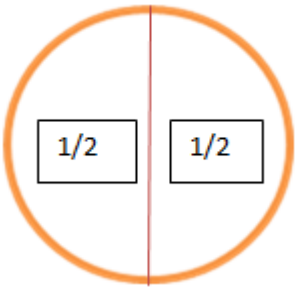
Fraction: A fraction is a small part or proportion of something.

Whole



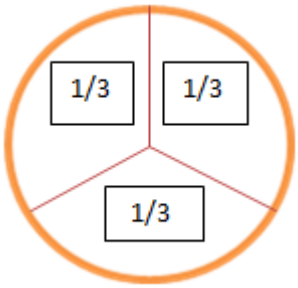
It is 1 whole

Half



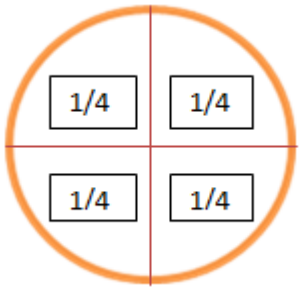
Here we have divided a whole into two equal parts, each is part is called half or ½

One-third



Here we have divided a whole into three equal parts; each part is called One-third or 1/3.

One-fourth or Quarter



Here we have divided a whole into four equal parts; each part is called One-fourth or ¼.

- **How to read and write fractions?**

Here, a big rectangle is divided into 5 equal parts. Out of 5 parts only 2 parts is shaded in green.

So, fraction for shaded part is 2/5

It can be read as 2 by 5 or 2 upon 5

$\frac{2}{5}$ ⟶ Numerator (represents parts we are taking about, out of total)

$\frac{2}{5}$ ⟶ Denominator (represents total parts into which whole is divided)

- **Fill in the blanks**.

1) A fraction is a small _____ of something.
2) Number written above the line in a fraction is called _____.
3) Number written below the line in a fraction is called _____.
4) In $\frac{2}{5}$, _____is the numerator and ____ is the denominator.
5) In $\frac{3}{8}$, _____is the numerator and ____ is the denominator.
6) In $\frac{6}{9}$, _____is the numerator and ____ is the denominator.
7) In $\frac{7}{8}$, _____is the numerator and ____ is the denominator.
8) In $\frac{8}{9}$, _____is the numerator and ____ is the denominator.

- **Equivalent Fractions**

Equivalent fractions are the fraction that look different but have same value.

- **Ways to find whether fractions are equivalent or not: -**

If product of numerator of the first fraction and denominator of second fraction is equal to product of numerator of the second fraction and denominator of first fraction, the two fractions are called equivalent.

Example:

5 x 3 = 15

1 x 15 = 15

The two products are equal. So, 5/15 and 1/3 are equivalent fractions.

- **Are these fractions equivalent?**

a) $\frac{3}{5}$ and $\frac{9}{15}$ _____

Answer:

3 × 15 = 45

5 × 9 = 45

Yes it is an equivalent fractions.

b) $\frac{1}{2}$ and $\frac{4}{5}$ _____

Answer:

1 × 5 = 5

2 × 4 = 8

No, it is not an equivalent fractions.

c) $\frac{5}{6}$ and $\frac{20}{24}$ _____

d) $\frac{6}{9}$ and $\frac{7}{9}$ _____

e) $\frac{2}{3}$ and $\frac{14}{21}$ _____

- **Ways to build equivalent fractions: -**

Method 1: Multiply numerator and denominator of the given fraction by common number but not by zero.

Example:

$$\frac{4 \times 2}{5 \times 2} = \frac{8}{10} \; ; \qquad \frac{4 \times 3}{5 \times 3} = \frac{12}{15}$$

Method 2: Divide numerator and denominator of the given fraction by common number but not by zero.

Example:

$$\frac{4 \div 2}{8 \div 2} = \frac{2}{4} \; ; \qquad \frac{2 \div 2}{4 \div 2} = \frac{1}{2}$$

- **Write the next 3 equivalent fraction of the below numbers.**

a) $\frac{1}{3}$

Answer:

$\frac{1 \times 2}{3 \times 2} = \frac{2}{6}$

$= \frac{2}{6}, \frac{3}{9}, \frac{4}{12}$

b) $\frac{2}{5}$ _____

Answer:

$= \frac{4}{10}, \frac{6}{15}, \frac{8}{20}$

c) $\frac{1}{2}$ _____

d) $\frac{2}{7}$ _____

e) $\frac{3}{4}$ _____

- **Addition of like fractions**

Steps to add like fractions

Step 1: Add the numerators of the fractions given and write over the common denominator.

$$\text{Sum} = \frac{\text{Sum of numerators}}{\text{Common denominators}}$$

Step 2: Write the answer in the simplest form. If answer is in improper fraction, convert it into mixed fraction.

Question: 1

$$\frac{2}{5} + \frac{1}{5}$$

$$= \frac{2+1}{5} = \frac{3}{5}$$

Question: 2

$$\frac{2}{6} + \frac{1}{6}$$

$$= \frac{2+1}{6}$$

$$= \frac{3}{6}$$

$$= \frac{\cancel{3}}{\cancel{6}}$$

$$= \frac{1}{2}$$ (We have divided the numerator and denominator with table of 3)

Question: 3

$$\frac{6}{5} + \frac{7}{5}$$

$$= \frac{6+7}{5}$$

$$= \frac{13}{5}$$

To convert the improper fraction, divide the numerator by denominator, write remainder as the numerator and the divisor as the denominator.

$= 2\frac{3}{5}$

Question:

4) $\frac{1}{12} + \frac{5}{12}$

5) $\frac{7}{11} + \frac{2}{11}$

- **Subtraction of Like Fractions**

Steps to subtract like fractions

Step 1: Subtract the numerators of the fractions given and write over the common denominator.

$$\text{Difference} = \frac{\text{Difference of numerators}}{\text{Common denominators}}$$

Step 2: Write the answer in the simplest form. If answer is in improper fraction, convert it into mixed fraction.

Question: 1

$\frac{2}{5} - \frac{1}{5}$

$= \frac{2-1}{5}$

$= \frac{1}{5}$

Question: 2

$\frac{3}{6} - \frac{1}{6}$

$= \frac{3-1}{6}$

$= \frac{2}{6}$

$= \frac{\cancel{2}}{\cancel{6}}$

$= \frac{1}{3}$ (We have divided the numerator and denominator with table of 2)

Question

3) $\frac{10}{8} - \frac{4}{8}$

4) $\frac{11}{2} - \frac{5}{2}$

5) $\frac{12}{7} - \frac{11}{7}$

- Word problem:

1) There are 60 blocks and $\frac{3}{4}$ green in colour. How many blocks are not green?

   Ans:-

   Total blocks = 60

   ¾ of them are green = $60 \times \frac{3}{4}$

   $= 15 \times 3$

   = 45 blocks are green

   Blocks are not green (60 – 45) = 15

2) Anita counted 12 students in the choir. Three quarters of the students have brown hair. How many students in the choir have brown hair?

   Ans:

   Total students = 12

   Three quarter of (3/4)

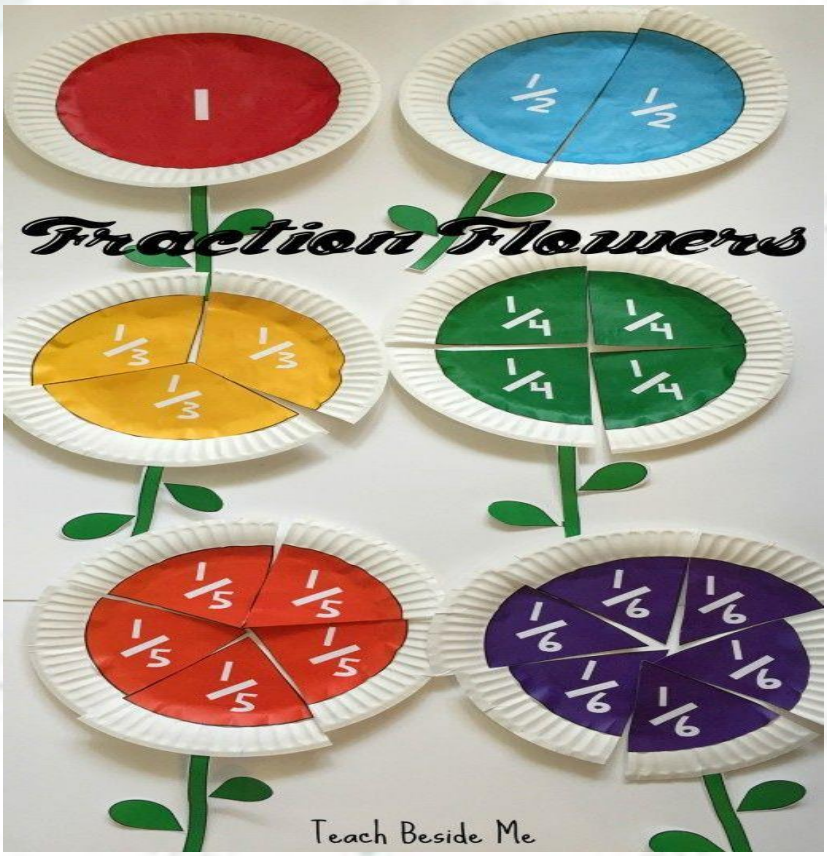
   Them have brown hair = $12 \times \frac{3}{4}$

   $= 3 \times 3$

   = 9 students have brown.

❖ Activity

Make a fraction flowers with help of paper plates and colour papers



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Ch-10

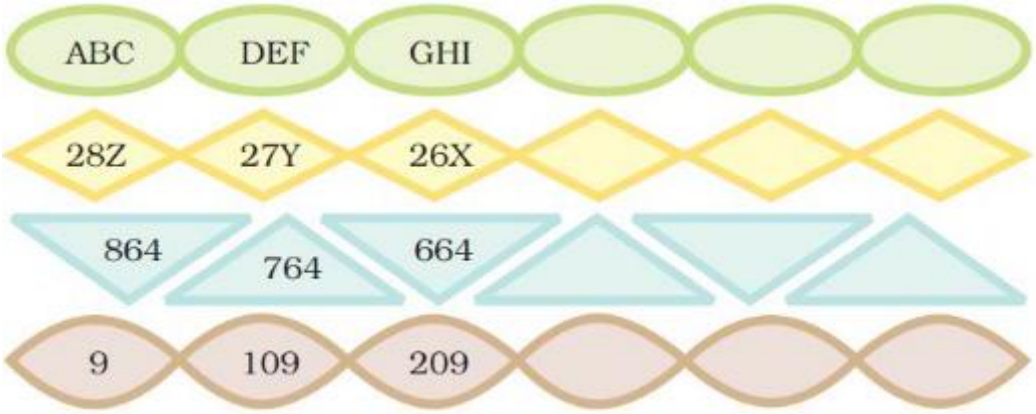
Play with patterns

Summary:

- **We can also make patterns with numbers and letters.**
- **Now you fill these stars. Use numbers 1 – 9 and the** rule **that the numbers on each line add up to 15.**
- **Using the same rule, complete these number towers.**
- **Teenu wants to write to his friend 'Good Morning'**

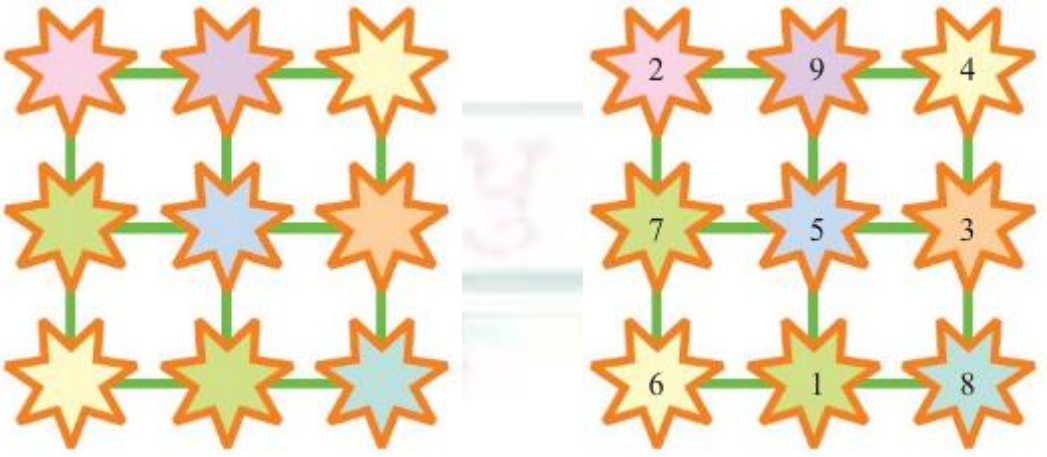
  Exercise- If we wants to write something in code.
- **Activity.**

- **We can also make patterns with numbers and letters.**

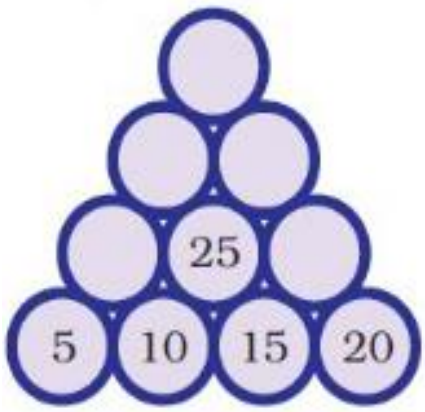


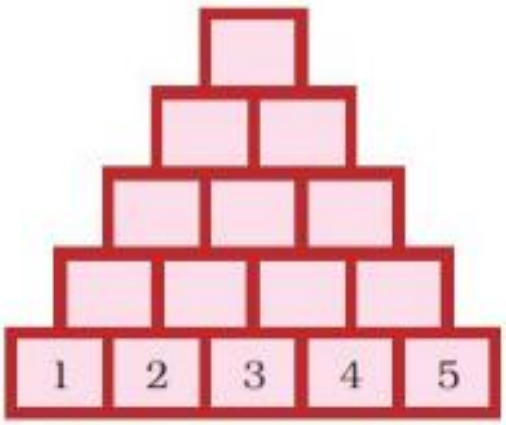
Answer:

- **Now you fill these stars. Use numbers 1 – 9 and the rule that the numbers on each line add up to 15.**

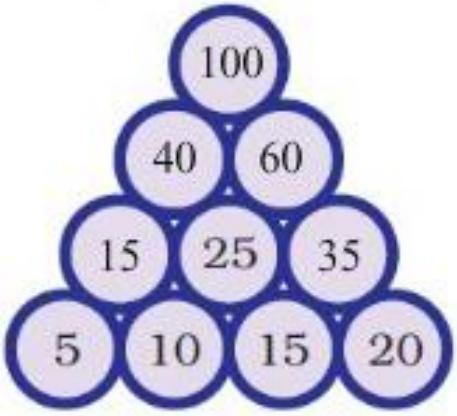


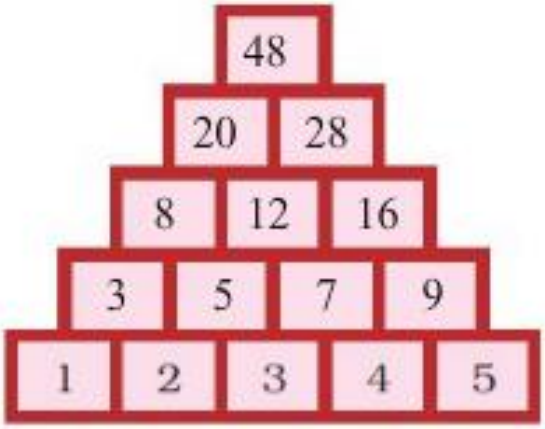
- **Using the same rule, complete these number towers.**





Answer:





- **Teenu wants to write to his friend 'Good Morning'.**

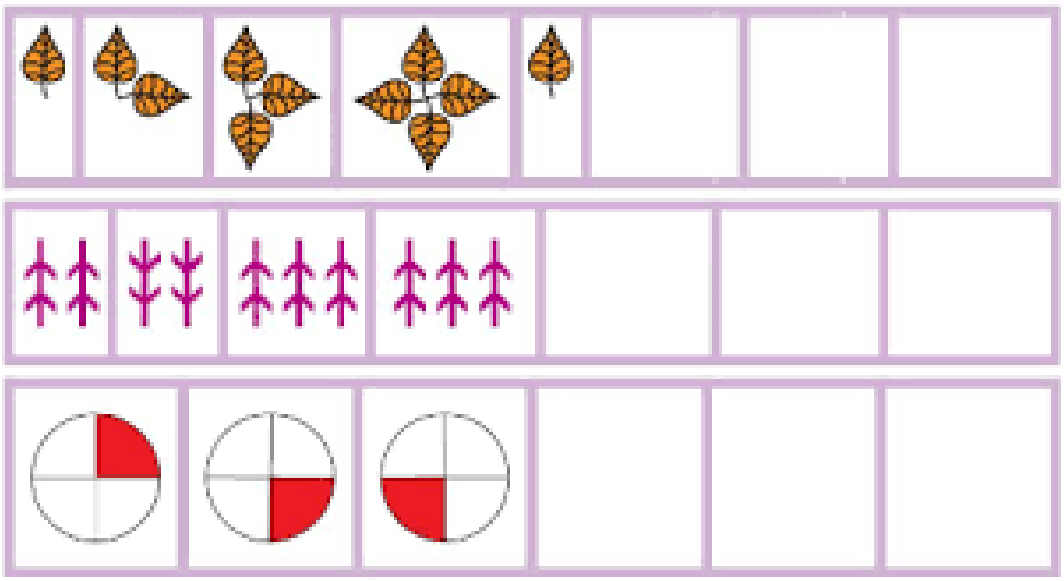
Answer:

G = 7; O = 15; O = 15; D = 4

M = 13; O = 15; R = 18, N = 14, I = 9, N = 14; G = 7

Thus, 'Good Morning' is written as

➢ **Exercise- If he wants to write something in code.**

1) Have a nice day-
2) I love India-
3) Good night-

❖ Activity: