Grade – V
Maths
Specimen copy
Year 21-22

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Chapter – 4
Parts and Wholes

Magic Top

Let us make a magic top.

Take a cardboard piece.

Draw a circle of radius 3 cm and cut it out.

Divide the circle into 8 equal parts. Now each part is $\frac{1}{8}$ of the circle.

Colour $\frac{2}{8}$ red, $\frac{1}{8}$ orange, $\frac{1}{8}$ yellow etc. as shown here. Push a matchstick through the centre of the circle.
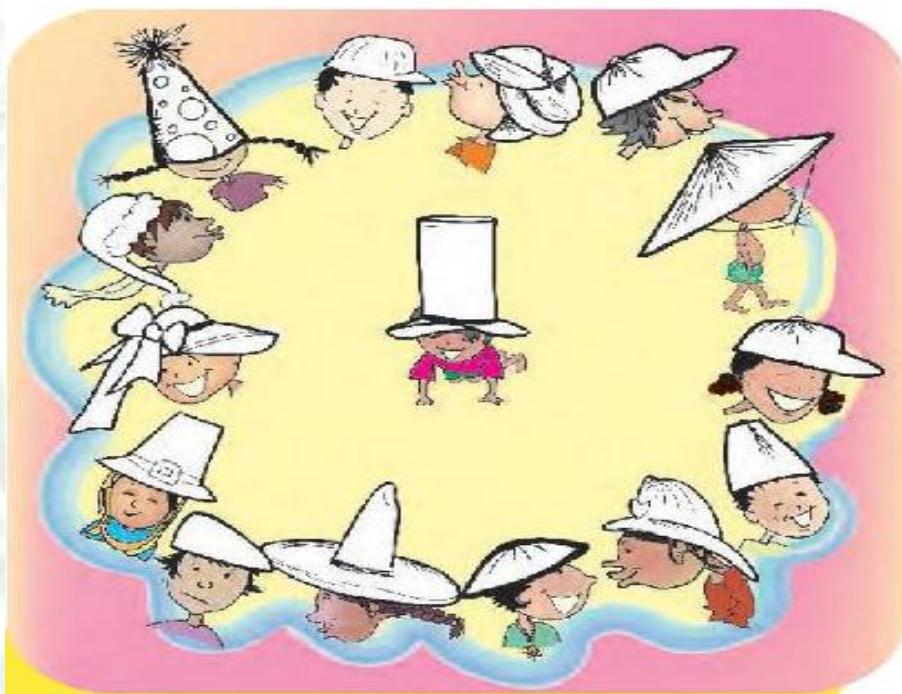
Your magic top is ready. Spin it fast!

What do you see? Can you see all the colours? Write what you see in your notebook.
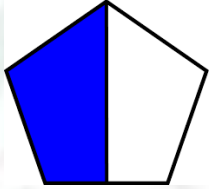
Keys points to remember

- **Introduction**
- **Fill in the blanks**
- **Check whether the given fraction are equivalent or not**
- **Addition of fraction**
- **Subtraction of fraction**
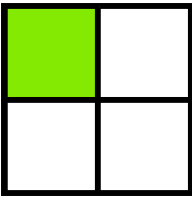- **Multiplication of fraction**
- **Compare (>, < or =)**
- **Activity**

❖ **Introduction:**
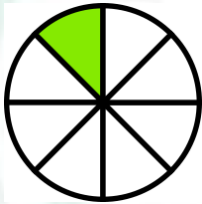 ➢ **Define : fraction -**A fraction is a "part" of a "whole"
  ➢ **Examples :** $\frac{1}{2}$

  ➢ $\frac{1}{4}$

  ➢ $\frac{1}{8}$

➢ **There are three types of fraction.**
  1) Like fraction – Fractions having the same denominators are called **like fractions**.
     Example - $\frac{1}{15}, \frac{3}{15}$

  2) Unlike fraction – Fractions having different denominators are called **unlike fractions**.
     Example - $\frac{3}{17}, \frac{10}{14}$

  3) Proper fraction – A fraction whose numerator is less than the denominator is called a **proper fraction.**
     Example=$\frac{1}{5}, \frac{2}{7}$

  4) Improper Fraction – A fraction whose numerator is either equal to or greater than the denominator, is called an **improper fraction.**
     Example =$\frac{5}{2}, \frac{7}{3}$

5) Unit fraction – A proper fraction having 1 as numerator is called a **unit fraction**.

Example - $\frac{1}{3}, \frac{1}{4}$

6) Mixed fraction – A combination of a whole number and a proper fraction is called **mixed fraction.**

Example $= 2\frac{1}{2}, 7\frac{4}{15}$

❖ **Fill in the blanks.**

a) 25 paise is **¼** part of one rupee.

a) 10 paise is **1/10** part of one rupee.

b) 25 minutes is **5/12** part of one hour.

c) 12 hours is **½** part of one day.

d) 2 months is **1/6** part of one year.

e) 7 months is **7/12** part of one year.

f) ¼ of Rs.1 = **25 paise**.

g) 1/3 of Rs. 150 = Rs. **50.**

h) 50 seconds = **5/6** of a minute.

i) 1/7 of 2100g = **3/10** of 1 kg.

❖ **Check whether the given fraction is equivalent or not.**

a) $\frac{7}{14}$ and $\frac{5}{10}$

Solution - $7 \times 10 = 5 \times 14$ (cross multiplication)

70 = 70

Yes, it is an equivalent fraction.

b) $\frac{5}{55}$ and $\frac{11}{121}$

Solution - $5 \times 121 = 55 \times 11$ (cross multiplication)

605 = 605

Yes, it is an equivalent fraction.

c) $\frac{8}{13}$ and $\frac{6}{11}$

Solution - $8 \times 11 = 13 \times 6$ (cross multiplication)

$88 = 78$

No, it is not an equivalent fraction.

d) $\frac{10}{14}$ and $\frac{25}{35}$

Solution - $10 \times 35 = 25 \times 14$ (cross multiplication)

$350 = 350$

Yes, it is an equivalent fraction.

e) $\frac{5}{9}$ and $\frac{13}{9}$

Solution - $5 \times 9 = 9 \times 13$ (cross multiplication)

$45 = 117$

No, it is not an equivalent fraction.

❖ Addition of fraction.

a) $\frac{3}{5} + \frac{9}{5}$

$= \frac{3+9}{5} = \frac{12}{5}$

b) $\frac{4}{5} + \frac{3}{7}$

$= \frac{4 \times 7 + 3 \times 5}{5 \times 7} = \frac{28 + 15}{35} = \frac{43}{35}$

c) $\frac{5}{8} + \frac{1}{2}$

$= \frac{5 \times 2 + 1 \times 8}{2 \times 8} = \frac{10 + 8}{16} = \frac{18}{16}$

d) $\frac{3}{5} + \frac{1}{8}$

$= \frac{3 \times 8 + 1 \times 5}{5 \times 8} = \frac{24 + 5}{40} = \frac{29}{40}$

e) $\dfrac{7}{4} + \dfrac{6}{6}$

$= \dfrac{7 \times 3 + 6 \times 2}{12} = \dfrac{21+12}{12} = \dfrac{33}{12}$

f) $1 + \dfrac{9}{6}$

$= \dfrac{1}{1} + \dfrac{9}{6} = \dfrac{1 \times 6 + 9 \times 1}{6} = \dfrac{6+9}{6} = \dfrac{17}{6}$

❖ Subtraction of fraction.

a) $\dfrac{18}{5} - \dfrac{11}{5}$

$= \dfrac{18-11}{5} = \dfrac{7}{5}$

b) $\dfrac{8}{3} - \dfrac{5}{6}$

$= \dfrac{8 \times 6 - 5 \times 3}{3 \times 6} = \dfrac{48-15}{18} = \dfrac{33}{18}$

c) $\dfrac{15}{4} - \dfrac{12}{5}$

$= \dfrac{15 \times 5 - 12 \times 4}{20} = \dfrac{75+24}{20} = \dfrac{99}{20}$

d) $\dfrac{9}{2} - 1$

$= \dfrac{9}{2} - \dfrac{1}{1} = \dfrac{9 \times 1 - 1 \times 2}{2} = \dfrac{9-2}{2} = \dfrac{7}{2}$

e) $1\dfrac{6}{7} - \dfrac{9}{6}$

$= \dfrac{13}{7} - \dfrac{9}{6} = \dfrac{8 \times 6 - 5 \times 3}{3 \times 6} = \dfrac{48-15}{18} = \dfrac{33}{18}$

❖ Multiplication of fraction.

a) $\dfrac{3}{5} \times \dfrac{4}{6}$

$= \dfrac{3 \times 4}{5 \times 6} = \dfrac{12}{30} = \dfrac{2}{5}$

b) $1 \times \dfrac{7}{4}$

$= \dfrac{1}{1} \times \dfrac{7}{4} = \dfrac{1 \times 7}{1 \times 4} = \dfrac{7}{4}$

c) $\dfrac{8}{3} \times \dfrac{7}{4}$

$= \dfrac{8 \times 7}{3 \times 4} = \dfrac{56}{12} = \dfrac{14}{3}$

d) $\dfrac{15}{4} \times \dfrac{2}{7}$

$= \dfrac{15 \times 2}{4 \times 7} = \dfrac{15}{14}$

e) $3\dfrac{2}{6} \times 1\dfrac{4}{6}$

$= \dfrac{20}{6} \times \dfrac{10}{6} = \dfrac{20 \times 10}{6} = \dfrac{200}{6}$

❖ **Compare (>, < or =).**

a) $\dfrac{4}{5}$ $\boxed{>}$ $\dfrac{2}{5}$

b) $\dfrac{9}{11}$ $\boxed{>}$ $\dfrac{6}{11}$

c) $\dfrac{6}{8}$ $\boxed{>}$ $\dfrac{7}{20}$

$6 \times 20 = 120$

$7 \times 8 = 56$

d) $\dfrac{3}{8}$ $\boxed{<}$ $\dfrac{4}{8}$

e) $\dfrac{3}{8}$ $\boxed{<}$ $\dfrac{4}{7}$

$3 \times 7 = 21$

$4 \times 8 = 32$

f) $\dfrac{8}{16}$ $\boxed{>}$ $\dfrac{7}{30}$

$8 \times 30 = 240$

$7 \times 16 = 112$

g) $\dfrac{5}{7}$ $\boxed{<}$ $\dfrac{6}{7}$

h) $\dfrac{14}{5}$ $\boxed{=}$ $\dfrac{14}{5}$

i) $\dfrac{4}{9}$ $\boxed{>}$ $\dfrac{3}{12}$

$4 \times 12 = 48$

$3 \times 9 = 27$

Activity

❖ Paste different fractions of countries flag in notebook to show parts and wholes.
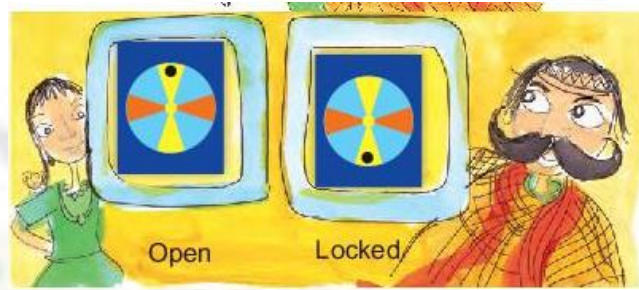
Chapter – 5
Does It Looks The Same?

<div align="center">
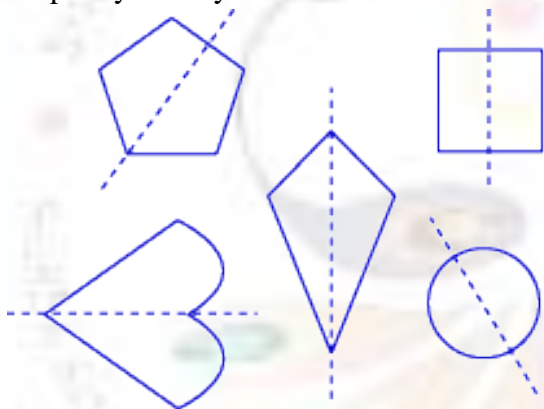
Key Points to Remember

</div>

- **Introduction.**
- **Figure with more than one line symmetry.**
- **Look at the figures and draw its shapes after half turn and one fourth turn.**
- **Multiple choice questions.**
- **Activity.**

❖ **Introduction:**

- Line of symmetry – A line dividing a figure into two identical parts is called the line of symmetry.
- There are 3 types of lines of symmetry.
    1) Vertical line symmetry
    2) Horizontal line symmetry
    3) Oblique line symmetry

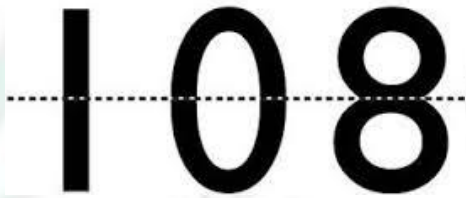- Different types of symmetry

    1) Shapes symmetry.

    2) Symmetry of alphabets.

| vertical line symmetry | Horizontal line symmetry | Both horizontal and vertical line symmetry | No line symmetry |
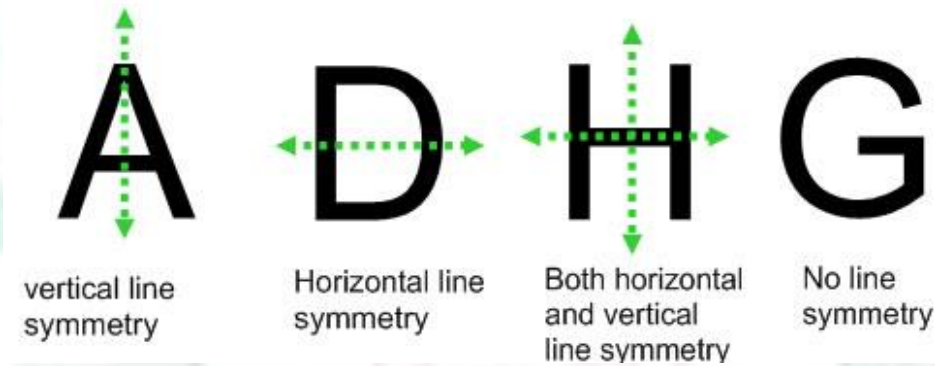
- One line of symmetry: K, M, T, U, V, W, Y.
- Two line of symmetry: H, I, X.
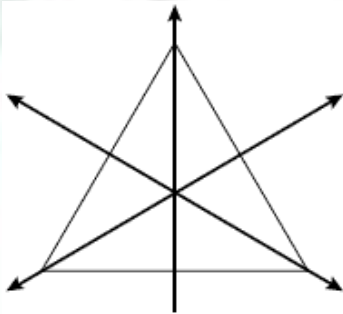- No line of symmetry: F, G, J, L, N, P, Q, R, S, Z.
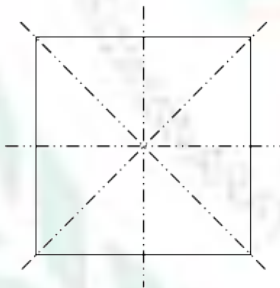
3) Symmetry of number.

┆O8

- No line of symmetry: 1, 2, 4, 5, 6, 7, 9.

❖ **Figure with more than one line symmetry.**
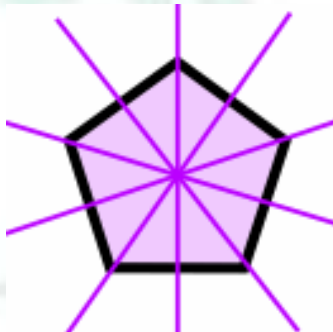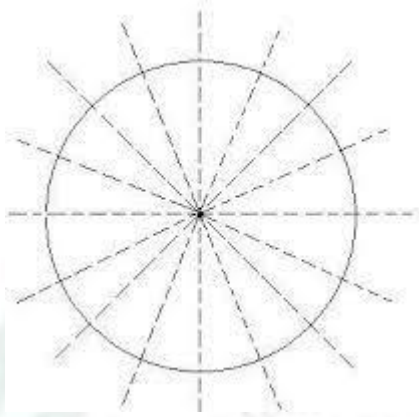   a.   Equilateral Triangle: 3 line of symmetry.

   b.   Square: 4 line of symmetry.

   c.   A regular pentagon: 5 line of symmetry.

   d.   A circle: Infinite lines of symmetry.

❖ **Look at the figure and draw its shape after half turn and one fourth turn.**

Draw	Half	$\frac{1}{4}$ turn

❖ **Multiple choice questions.**
1. How many lines of symmetry does a BD have?
   a) **1 lines**   b) 2 lines   c) 3 lines
2. Which of the following figures have exactly three lines of symmetry?
   a) Equilateral triangle   b) Circle   c) Regular pentagon
3. Which of the following words is made of letters having only horizontal line symmetry?

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a) MET   b) HAT   c) **BID**
4. How many lines of symmetry does a rectangle have?
   a) One   **b) Four**   c) Two
5. Which of the following letters does not have any line of symmetry?
   a) H   b) V   **c) Z**
6. Which of the following letters have two lines of symmetry?
   a) **H**   b) V   c) Z
7. Which of the following figures have exactly four lines of symmetry?
   a) **Square**   b) Circle   c) pentagon
8. How many lines of symmetry does a pentagon have?
   a) **Five**   b) Four   c) Two
9. A circle has _____ lines of symmetry.
   a) Six   b) not one   c) **infinite**

Activity

❖ **Make different type of shapes which look same after one third turn and one sixth turn.**

	$\frac{1}{3}$ *turn*	$\frac{1}{6}$ *turn*