DAY - 5
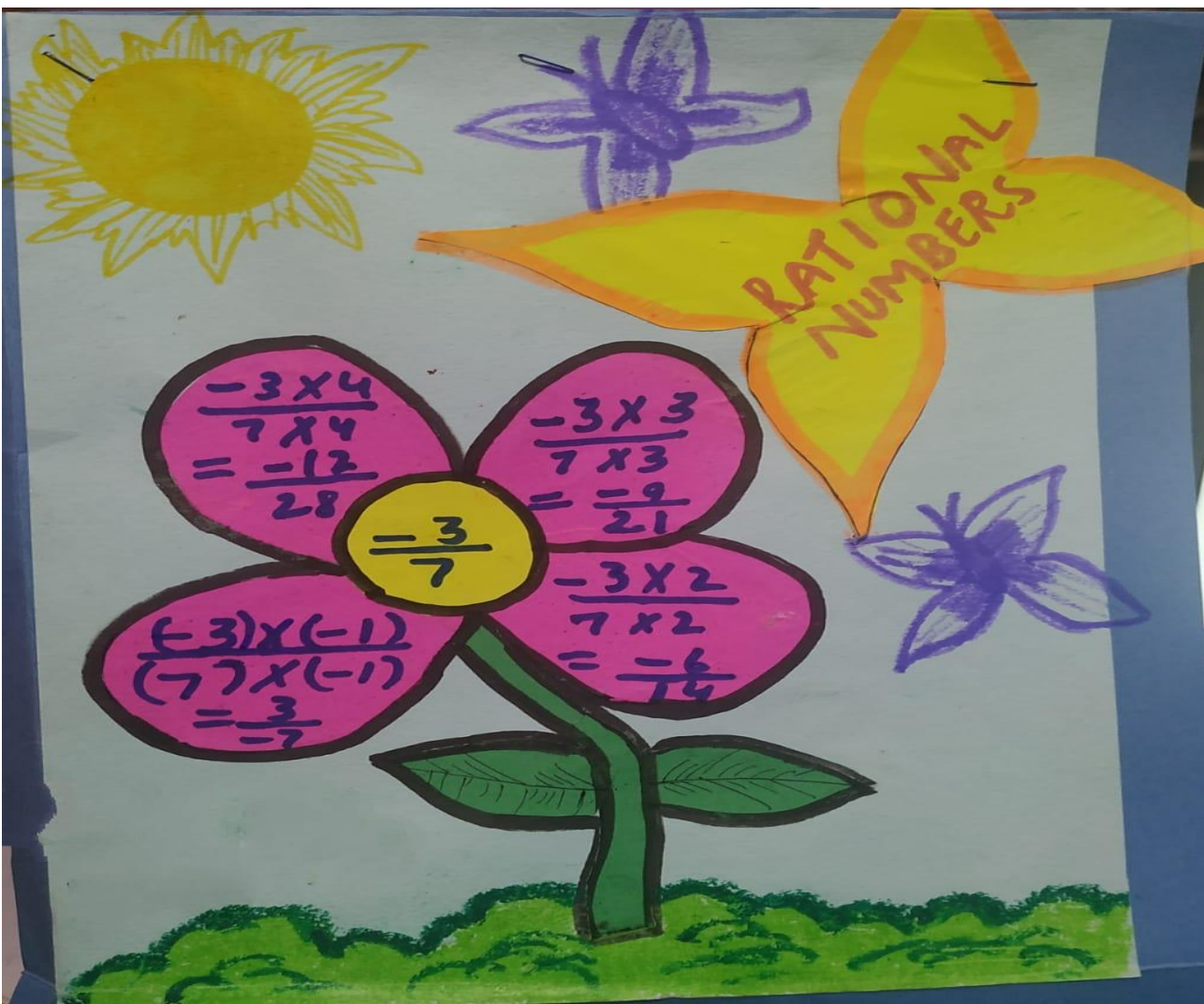
1. ACTIVITY ON MAKING OF EQUIVALENT RATIONAL NUMBERS.
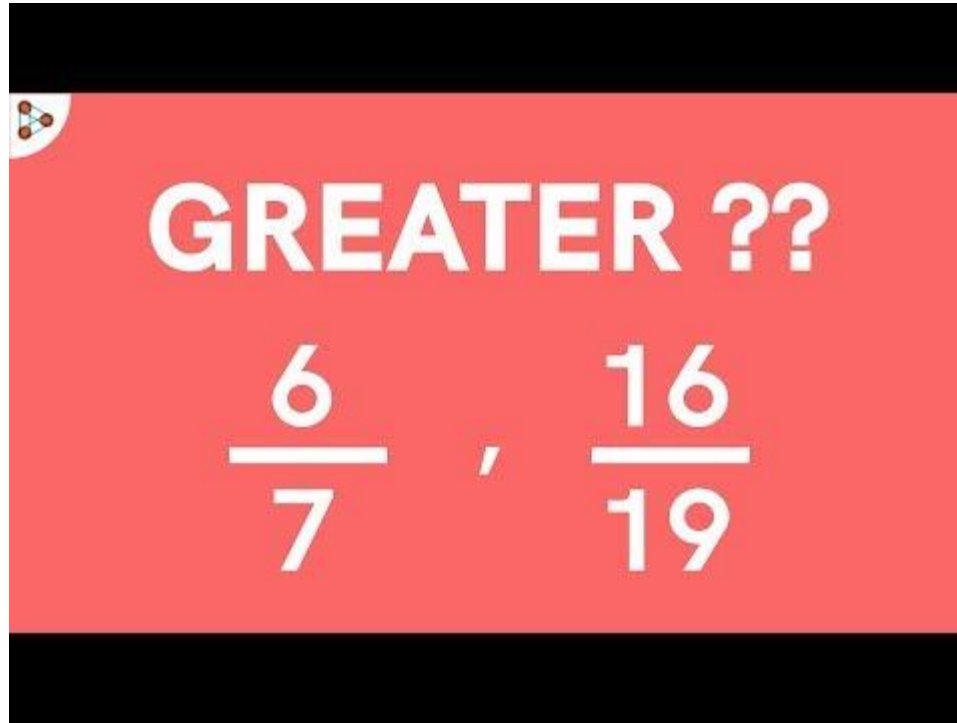2. COMPARISON OF RATIONAL NUMBERS.

ACTIVITY ON RATIONAL NUMBERS

1. DRAW 4 PETALS OF FLOWER ON A PASTEL SHEET.
2. TAKE ANY RATIONAL NUMBER AND WRITE IT IN THE CENTRE AS SHOWN IN THE IMAGE IN NEXT SLIDE.
3. WRITE DOWN IT'S 4 EQUIVALENT RATIONAL NUMBERS AS SHOWN IN THE IMAGE IN NEXT SLIDE.
4. PASTE IT IN YOUR **CLASS WORK NOTEBOOK**.

LET US WATCH A VIDEO ON COMPARING RATIONAL NUMBERS

It's URL is https://youtu.be/CbrfJPv2qP8

COMPARING RATIONAL NUMBERS:-

RATIONAL NUMBERS CAN BE COMPARED IN TWO DIFFERENT WAYS:-

1. BY REPRESENTING ON NUMBER LINE.
2. WITHOUT REPRESENTING ON NUMBER LINE.

REPRESENTING ON NUMBER LINE

i. BY REPRESENTING ON NUMBER LINE

Rational numbers can be compared easily when they are represented on the numbe

$$-5/3 \quad -4/3 \quad -2/3 \quad -1/3 \quad \quad 1/3 \quad 2/3 \quad \quad 4/3 \quad 5/3$$

Number line from -2, -1, 0, 1, 2
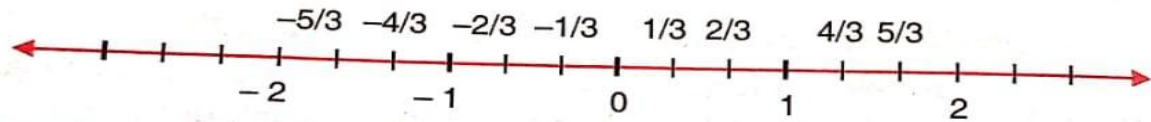
Any number on the number line is greater than any other number lying to the left of it.

Any number on a number line is less tha any other number lying to the right of i

Therefore, from the above number line it is clear that

$$\frac{2}{3} < \frac{5}{3}, \quad 1 < \frac{4}{3}, \quad \frac{-5}{3} < \frac{-1}{3}, \quad \frac{-4}{3} < \frac{1}{3}, \quad \text{etc.}$$

and

$$\frac{4}{3} > \frac{1}{3}, \quad \frac{4}{3} > \frac{-2}{3}, \quad \frac{-1}{3} > \frac{-4}{3}, \quad \text{etc.}$$

WITHOUT REPRESENTING ON NUMBER LINE

IF TWO RATIONAL NUMBERS HAVE THE SAME POSITIVE DENOMINATOR,THE NUMBER WITH THE LARGER NUMERATOR WILL BE GREATER THAN THE ONE WITH SMALLER NUMERATOR.

Example 11: Compare:

i) $\dfrac{2}{7}$ and $\dfrac{5}{7}$

ii) $\dfrac{-6}{17}$ and $\dfrac{-13}{17}$

Solution: (i) The rational numbers $\dfrac{2}{7}$ and $\dfrac{5}{7}$ have same denominator, therefore, smaller the numerator, smaller will be the rational number. Since $2 < 5$, therefore,

$$\dfrac{2}{7} < \dfrac{5}{7}.$$

(ii) $\dfrac{-6}{17}$ and $\dfrac{-13}{17}$ have the same denominator. Therefore, we shall compare the numerators—

$$-6 > -13$$

Therefore, $\dfrac{-6}{17} > \dfrac{-13}{17}.$

If two rational numbers have different denominators, then first make denominators equal and then compare.

Example 12: Compare $\dfrac{7}{5}$ and $\dfrac{8}{7}$.

Solution: First, convert the rational numbers to have the same positive denominator.

$$\left.\begin{array}{l}\dfrac{7}{5} = \dfrac{7 \times 7}{5 \times 7} = \dfrac{49}{35} \\[2mm] \dfrac{8}{7} = \dfrac{8 \times 5}{7 \times 5} = \dfrac{40}{35}\end{array}\right]$$ (Denominators are same)

Now, compare $\dfrac{49}{35}$ and $\dfrac{40}{35}$

As $49 > 40$, therefore, $\dfrac{49}{35} > \dfrac{40}{35}$

Hence, $\dfrac{7}{5} > \dfrac{8}{7}$.

Example 13: Compare the rational numbers $\dfrac{-4}{9}$ and $\dfrac{5}{-6}$.

Solution: First write $\dfrac{5}{-6}$ in standard form, i.e. $\dfrac{-5}{6}$.

Now, convert them to have the same denominator.

$$\dfrac{-4}{9} \times \dfrac{2}{2} = \dfrac{-8}{18}$$

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

Now, compare $\dfrac{-8}{18}$ and $\dfrac{-15}{18}$

Since, numerator $-8 > -15$, therefore, $\dfrac{-8}{18} > \dfrac{-15}{18}$.

Hence, $\dfrac{-4}{9} > \dfrac{5}{-6}$.

ANOTHER METHOD :-

If p/q and r/s and two rational numbers. With q and s positive integers then p/q > r/s if p x s > q x r ,

p/q < r/s if p x s < q x r and

p/q = r/s if p x s = r x q

Example:- Compare $\frac{-5}{7}, \frac{9}{-13}$

Solution:- First we write $\frac{9}{-13}$ in standard form as $\frac{-9}{13}$

Then we find the products $\dfrac{-5}{7} \diagdown \dfrac{-9}{13}$

The products are -5 x 13 = -65 and -9 x 7 = -63

Since -65 < -63, therefore

$$\frac{-5}{7} < \frac{9}{-13}$$

Q-2 i) $\quad \dfrac{-5}{7}, \quad \dfrac{4}{3}$

Solu $\qquad \left|\dfrac{-5}{7}\right| = \dfrac{5}{7}$

$\qquad \left|\dfrac{4}{3}\right| = \dfrac{4}{3}$

$\qquad \dfrac{5}{7}, \quad \dfrac{4}{3}$

By Cross Multiplication,

$\qquad 5 \times 3 = 15$

$\qquad 4 \times 7 = 28$

Since, $\quad 15 < 28$

So, $\quad \dfrac{5}{7} < \dfrac{4}{3}$

Hence, $\quad \left|\dfrac{-5}{7}\right| < \left|\dfrac{4}{3}\right|$

FOR COMPARING THE ABSOLUTE VALUES OF THE RATIONAL NUMBERS

WE NEED TO FIND THE ABSOLUTE VALUES OF RATIONAL NUMBERS FIRST AND THEN CROSS MULTIPLICATION WE CAN COMPARE .

DO THIS QUESTION IN YOUR CLASSWORK NOTEBOOK

WORKSHEET -5
Q2 Find the value of x , if-

(i) 3/-5 = x/15

By cross multiplication,

3 **X** 15 = x **X** -5

x =45/-5

  =-9

Thus x = -9

Do this question in class work notebook.

HOMEWORK

1. DO ACTIVITY ON MAKING OF EQUIVALENT RATIONAL NUMBERS IN **CLASSWORK NOTEBOOK**.
2. DO Q1 AND Q3 OF WORKSHEET 6 IN HOMEWORK NOTEBOOK.
3. DO Q6,7,8 OF BRAINTEASERS (PAGE-18) IN HOMEWORK NOTEBOOK.
4. DO Q2(i) AND (iii) OF WKS- 4 IN HOMEWORK NOTEBOOK.
5. MAINTAIN THE INDEX PROPERLY.