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Teaching Learning Material

Class – 7th | Subject – Mathematics

Section – All | Subject teacher – Bandana Kumari

Rational number

Additive Inverse

If sum of two rational numbers is zero, then they are said to Be additive inverse of each other.

Now, $\frac{-4}{7}+\frac{4}{7}=\frac{-4+4}{7}=\frac{0}{7}=0$

Also, $\frac{4}{7}+\frac{(-4)}{7}=\frac{4+(-4)}{7}=\frac{0}{7}=0$

Alternative method:

Let 'x' be additive inverse of $\frac{4}{7}$

$$x+\frac{4}{7}=0$$

$$x=\frac{-4}{7}$$

Thus, $\frac{-4}{7}$ is additive inverse of $\frac{4}{7}$

We conclude that, $\frac{4}{7}$ and $\frac{-4}{7}$ are additive inverse of each other.

Example :-

1. Find 'the additive inverse of the following:

(a) $\frac{-3}{9}$ (b) $\frac{5}{7}$ (c) $\frac{-9}{11}$

Solutions:-

(a) $\frac{-3}{9}+\frac{3}{9}=\frac{0}{9}=0$

So, $\frac{3}{9}$ is additive inverse of $\frac{-3}{9}$.

(b) $\frac{5}{7}+\frac{(-5)}{7}=\frac{5+(-5)}{7}=\frac{0}{7}=0$

So, $\frac{-5}{7}$ is additive inverse of $\frac{5}{7}$.

(c) Do it yourself.

2. Satpal walks $\frac{2}{3}\,\text{km}$ from a place p towards east and then $1\frac{5}{7}\,\text{km}$ towards west. Where will he be now from p?

Sol:-

Let us denote the distance towards east by positive sign. So the distance towards west would be denoted by negative sign. Thus, distance of satpal from the point p would be

$$\left(\frac{+2}{3}\right)+\left(-1\frac{5}{7}\right)=\frac{+2}{3}+\frac{(-12)}{7}$$
$$=\frac{2x7}{3x7}-\frac{12x3}{7x3}$$
$$=\frac{14-36}{21}$$
$$=\frac{-22}{21}$$
$$=-1\frac{1}{21}$$

Since, the distance is negative so, satpal is at a distance of $1\frac{1}{21}\,\text{km}$ towards west of p.

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