Rates

How is a rate different from a from a ratio?

Rates are written in fraction form and must be in the right order. Since the units are different, they remain in the answer, but there should be no common factors in the numbers.

EXAMPLE:

    a.   6 leaders for every 48 Cub Scouts is shown

$$\frac{6 \text{ Leaders}}{48 \text{ Cub Scouts}} = \frac{1 \text{ Leader}}{8 \text{ Cub Scouts}}$$

1 & 2. Write the simplified rates:

    1.   60 oz. for 8 servings
    2. $56 earned in 8 hours

ANSWER:

1. $\dfrac{60 \ oz}{8 \ servings} = \dfrac{7.5 \ oz}{1 \ serving}$

2. $\dfrac{\$56}{8 \ hours} = \dfrac{\$7}{1 \ hou}$

It means that $7 was earned in every 1 hour block of time. We say the rate of earnings was $7 per hour.

You are accustomed to using unit rates.

Speed: 45 mph is $\dfrac{45 \ miles}{1 \ hour}$

Cost: $3.25 per ticket is $\dfrac{\$3.25}{1 \ tic}$

It is easy to find the unit rate when the denominator is a factor of the numerator.

$18 for 6 lbs. $\dfrac{\$18}{6 \ lbs} = \dfrac{\$3}{1 \ lb}$

NOTICE the same result would be obtained by dividing

$$\overset{\$3\text{per pound}}{6\overline{)18}}$$

When the "fraction" will not simplify leaving "1" in the denominator, you can divide to find the <u>unit</u> <u>rate</u>.

EXAMPLE: $18 for 5lbs.

$$\frac{\$18}{5\ lbs} = \frac{\$3.6}{1\ lbs}$$