

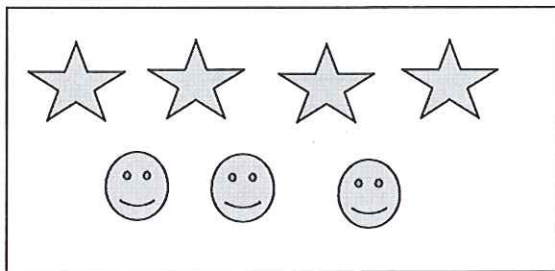
Key

NOTES on Ratios and Rates

Ratios: 4 to 7 $\frac{4}{7}$ 4 : 7 (All 3 mean the same)

5 to 2 $\frac{5}{2}$ 5 : 2 (All 3 mean the same)

Writing Ratios: Use the diagram below to write 3 different ratios.



Ratio # 1: 4 to 3 $\frac{4}{3}$
Ratio # 2: 4 to 7 $\frac{4}{7}$
Ratio # 3: 3 to 4 $\frac{3}{4}$

Expressing Ratios in Simplest Form:

5 to 20 = 1 to 4

14 : 7 = 2 : 1

$\frac{24}{36}$ = $\frac{2}{3}$

$\frac{27}{3}$ = 9

$\frac{50 \text{ sec}}{2 \text{ min}}$ = $\frac{5}{12}$

5 ft : 60 in = 1

$\frac{30 \text{ sec}}{3 \text{ min}}$ = $\frac{1}{9}$

10 min : 1 hr = 1 : 6 $\frac{1}{6}$

Rates are like Ratios but with UNITS in the numerator AND denominator:

$$\frac{\$5}{20 \text{ lemons}} \quad \frac{162 \text{ students}}{6 \text{ classes}} \quad \frac{\$81.64}{26 \text{ gallons}}$$

UNIT RATES are Rates that have a DENOMINATOR OF 1. The unit Rates for the three Rates above are as follows:

$$\frac{\$.25}{\text{lemon}} \quad \frac{27 \text{ students}}{\text{class}} \quad \frac{\$3.14}{\text{gallon}}$$

Example: A cyclist completed a 200-lap race in 2 and a half hours. Find the Unit Rate:

$$\frac{\text{Number of laps}}{\text{Number of hours}} = \frac{200 \text{ laps}}{2.5 \text{ hours}}$$

$$\text{The Unit Rate} = \frac{80 \text{ laps}}{\text{hour}}$$

Example: Find the Unit Rate of each item to see which has the better buy. A milk container that costs \$2.99 for 64 oz or a milk container that costs \$1.59 for 12 oz.

$$\frac{\$2.99}{64 \text{ oz}} \quad \leftarrow \text{Write the Rates for both comparing \$ to oz} \quad \rightarrow \quad \frac{\$1.59}{12 \text{ oz}}$$

$$\frac{\$.05}{\text{oz}} \quad \leftarrow \text{Divide to get the Unit Rates for both} \quad \rightarrow \quad \frac{\$.13}{\text{oz}}$$

(To the nearest CENT)

It makes SENSE by 8 CENTS that the 64 oz milk container is CHEAPER.