Name: .....

Level 9
Unit 26.1

Calculate Ratio

Complete 2 pages (203 - 204) within 6 minutes with > 95% accuracy.

Time Taken:..... Total Score:.....

Example

Consider the following.

- Stella's weight is 25 kg and her father's weight is 75 kg. How many times her father's weight is Stella's weight? It is 3 times.

In the above example, we compared the two quantities in terms of 'how many times'. This comparison is known as the Ratio.
We denote ratio with the symbol ':'.

i.e. The ratio of the father's weight to Stella's weight = $\frac{\cancel{75}^{3}}{\cancel{25}_{1}} = \frac{3}{1} = 3:1$

We cannot take the ratio of the two quantities of different kind. To take the ratio between two similar quantities their units must be the same.

i.e. The ratio of 2 m to 80 cm is $\frac{200cm}{80cm} = \frac{\cancel{200}^{5}}{\cancel{80}_{2}} = \frac{5}{2} = 5:2$

Exercise

1. Find the ratio of each of the following in simplest form.

a) 6 to 8	b) 81 to 108	c) 98 to 63
d) 55 to 66	e) 300 to 450	f) 49 to 245
g) 33 km to 121 km	h) 30 m to 45 m	i) 80 cm to 60 cm

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Exercise

Solve the problems below.

2. Express the following relations as ratios.

a) Kerosene costs $\frac{1}{2}$ as much as gasoline. ☐ : ☐

b) $\frac{1}{4}$ of the earth's surface is land and the rest is water. ☐ : ☐

c) Mrs. Heron is $\frac{26}{5}$ as old as her son. ☐ : ☐

d) The length of a rectangle is three times its width. ☐ : ☐

e) In a class there are 7 teachers with 28 classes. ☐ : ☐

3. If the price of a pen is raised from \$30 to \$40, what is the ratio of the new price to the old price?

4. A length of $\frac{3}{4}$ m compared to a length of $\frac{2}{3}$ m is

a) $\frac{3}{4}\times\frac{3}{2}=9:8$ b) $\frac{3}{4}\times\frac{3}{2}=6:12$

c) $\frac{3}{4}+\frac{2}{3}=17:12$ d) $\frac{3}{4}\times\frac{3}{2}=1:2$

5. In a school there are 64 teachers, 1,024 girls, and 1,536 boys.

a) Find the ratio of the numbers of teachers to number of girls.

b) Find the ratio of the numbers of boys to the number of teachers.