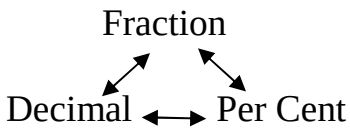
Section 7.4 **Per Cent** means "per hundred"

Change from fraction to decimal to percent



See table in textbook and example below:

Fraction	Decimal	Per Cent
$\frac{5}{100}$	0.05	5 %
$\frac{1}{10} = \frac{10}{100}$	0.10	10 %
$\frac{1}{3}$	0.3333…	$33\frac{1}{3}$ %
$\frac{2}{3}$	0.6666…	$66\frac{2}{3}$ %
$\frac{35}{100}$	0.35	35 %
$\frac{100}{100}$	1.00	100 %
$\frac{150}{100}$	1.50	150 %
$\frac{5}{1000} = \frac{.5}{100}$	0.005	0.5% = $\frac{1}{2}$ %

Mental math and estimation is based on choosing to use the most appropriate version of a number. For examples see the textbook and the examples below:

Mental Math

10% of a number = $\frac{1}{10}$ of a number = the number divided by 10

So 10% of $ 45 = $\frac{1}{10}$($45) = $4.50. Thus 20% of $45 = 2 times 10% of $45 = 2($4.50) = $9.00

$66\frac{2}{3}$ % of 120 = $\frac{2}{3}$ of 120 = $\frac{2}{3}$ times 120 = $\frac{2\ (120)}{3}$ = 2 (40) = 80

Estimation - [Write using a fraction with a compatible number.]

32 % of 95 is approximately $33\frac{1}{3}$ % of 90 = $\frac{1}{3}$ (90) = 30

24 % of 83 is approximately 25 % of 80 = $\frac{1}{4}$ (80) = 20

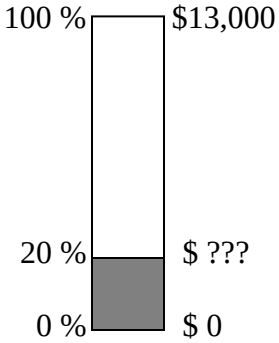
21 % of 76 is approximately 20 % of 75 = $\frac{1}{5}$(75) = 15

There are **three common types of per cent problems**. These can be illustrated using a rectangular diagram that looks like a thermometer. They can be solved using simple arithmetic, using a proportion or using an algebraic equation. See textbook examples.

1. Find a % of a given number:

A car was purchased for $13,000 with a down payment of 20% of the purchase price. How much was the down payment?

Diagram



Simple Arithmetic

$13,000
x .20
$2,600.00
or $2,600

Proportion

$$\frac{20}{100} = \frac{x}{13{,}000}$$

$100x = (20)(13{,}000)$
$x = 2600$

Algebraic equation

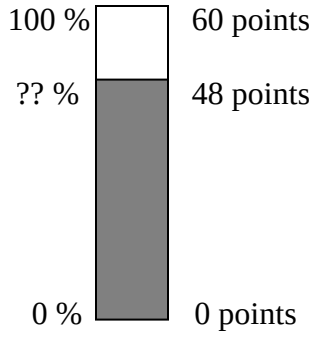
20% of $13,000 = x
$2,600 = x

NOTE: Mental math method: Find 10% and then double it. 10% of $13,000 = $1,300 and thus 20% of $13,000 = $2,600.

2. Given two numbers, find what % one number is of the other number.

Susan scored 48 points on a 60 point test. What % did she get correct?

Diagram **Simple Arithmetic** **Proportion** **Algebraic equation**



3. Given a "piece" of something and its per cent find the "whole".

162 seniors, 90% of the senior class, are going on a class trip.
How many seniors are in the class?

Diagram **Simple Arithmetic** **Proportion** **Algebraic equation**