



Developing a formula: setting up linear equations in two unknowns

Year 11 General Maths
Units 1 and 2

Learning Objectives

By the end of the lesson I hope that you understand and can apply the following to a range of questions from the Unit 1 and 2 General Mathematics course.

- Know how to set up a linear equation in two unknowns

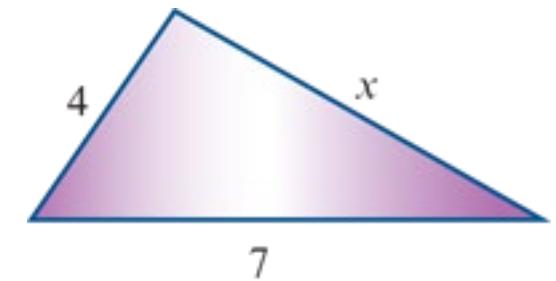


Recap

We are now building on the work we did previously where we were setting up linear equations with one unknown.

The first example we did was to find the perimeter of the triangle shown below:

Now we are going to look at how to do this with two unknowns!



$$-6 \quad x + 6 = 10 \quad -6$$

$$\underline{\underline{x = 4}}$$

$$x + \frac{x}{7} = 3 \quad x 4$$

$$2x = 10$$

$$\underline{\underline{x = 12}}$$

$$\div 2 \quad x = \underline{\underline{5}} \quad \div 2$$

$$x + 2 = 7 \quad x 3$$

$$x + 2 = 21$$



Example

Sadly, there aren't too many examples I can show you, but the advice I gave last time is the same. The more of these questions you do, the better you will get at it.

In this example you will need to decide which two pronumerals you would like to use to stand for each of the items you are selling.

Sausage rolls cost \$1.30 each and party pies cost 75 cents each.

- Construct a formula for finding the cost, C dollars, of buying x sausage rolls and y party pies.
- Find the cost of 12 sausage rolls and 24 party pies.

1.30

1.30 \times 2

1.30 \times 3

1.30 \times x

0.75

0.75 \times 2

0.75 \times 3



$$C = 1.30x + 0.75y$$

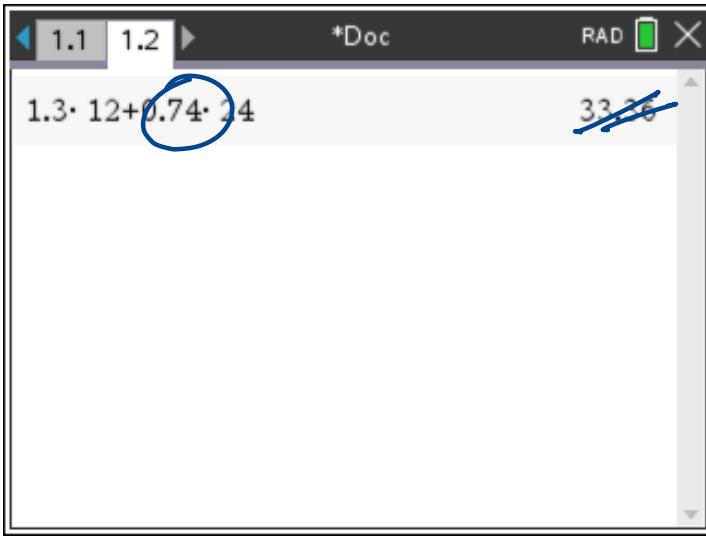
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Knowing the formula is now $C = 1.3x + 0.75y$ we can use it



$$C = 1.30x + 0.75y$$

$$x = 12$$

$$C = 1.30 \times 12 + 0.75 \times 24$$

$$y = 24$$

$$= \$33.60$$



Example

Lemon tarts cost \$3.50 each and apple crumble tarts cost \$4.75 each.

- a** Construct a formula for finding the cost, C dollars, of buying x lemon tarts and y apple crumble tarts.
- b** Find the cost of 10 lemon tarts and 15 apple crumble tarts.

$$x = 10$$

$$y = 15$$

$$\begin{aligned}C &= 3.50x + 4.75y \\&= 3.50 \times 10 + 4.75 \times 15 \\&= \underline{\underline{\$106.25}}\end{aligned}$$



Work to complete

The work I am asking to be completed for this topic is shown below.

This is the minimum work which should be completed. The more questions which are answered the better your chance of success in exams. Questions towards the end of the exercises and in the Chapter Review are the best practice you can do.

Questions to complete:

Exercise 5C: 1, 2, 4, 6, 7, 8, 9

