

**TM**

Learning Brief

**Week**

**Term**

**2015**

02

3

By the end of this week, you should be able to:

* Expand monomials/binomials/trinomials
* Factorise expressions (linear and quadratic)
* Simplify algebraic products and quotients using index laws
* Rationalise a surd
* Solve linear equations
* Solve simultaneous equations

Goals



Practical Components

Theoretical Components

From *Cambridge*

Ex 1A You need to be able to do any of these questions from Q1 to Q11.

Ex 1B Anything from Q1 to Q11.

Ex 1C Anything from Q1 to Q7.

Ex 1D Anything from Q1 to Q8

Ex 1F Q1 to Q5 but only those with equal signs.

Ex 1H Any from Q1 and Q2. Make sure you can solve these manually and with CAS.

Ex 2C Q1 to Q16, Q18 a) b)

Ex 2D Q1 to Q9

**NOTE:** There are too many questions in the above Exercises for you to attempt them all. You need to do enough to be proficient in the areas covered.

You need to read through Sections 1A, 1B, 1C, 1D, 1F (linear equations), 1H, 2C, 2D

If necessary make brief notes.

INDICES:

<http://www.haesemathematics.com.au/samples/ibmyp3_08.pdf>

ALGEBRA:

<http://www.intmath.com/basic-algebra/basic-algebra-intro.php>

SURDS:

<http://www.haesemathematics.com.au/samples/ibmyp4_04.pdf>

<http://www.mathsteacher.com.au/year9/ch07_surds/04_simp/surds.htm>

<http://www.mathsteacher.com.au/year9/ch07_surds/06_oper/operations.htm>

**NOTE:** Your background and level of confidence will determine how much time you need to spend on this work. Much of it should be a follow on from work done in High School.

QFO

Quiz/Forum/Other

None this week.

1

**PART A:**

The temperature $T ^{o}C$ of a coffee in a ceramic mug at time $t$ minutes after it is poured is given by $T=60\left(4^{-0.05t}\right)+20$.

i. Find the initial temperature of the coffee (by substitution).

ii. Find the temperature of the coffee 2 minutes after it is poured (by substitution).

iii. Sketch the graph (using CAS or any other graphical software (see Steve to get help)) of the equation for $0\leq t\leq 50$.

iv. If the coffee can be comfortably drunk when it is between temperatures of $30^{o}C and 45^{o}C$, find the time available to drink the coffee. (do not attempt to solve this algebraically – use the graph and/or CAS).

**PART B:**

Take the sum of $2a-3b-4c$ and $-4a+7b-5c$ from the sum of $4c-2b$ and $5b-2a-2c$.

**PART C:**

Divide the product of $\left(-3x^{7}y^{5}\right)^{4}$ and $\left(-2xy^{6}\right)^{3}$ by $\left(-6x^{3}y^{8}\right)^{2}.$

**PART D**

(i) Simplify $\frac{1}{1+\sqrt{3}}-\frac{1}{1-\sqrt{3}}$.

Investigation