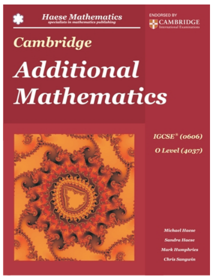


ERRATA

CAMBRIDGE ADDITIONAL MATHEMATICS

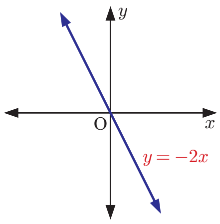
IGCSE® (0606), O Level (4037)

First edition - 2014 initial print

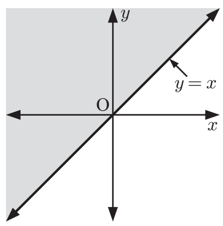
The following erratum was made on 11/Jan/2017

page 456 **ANSWERS REVIEW SET 1A** question **5 a** should have correct function label:

5 **a**



b



The following erratum was made on 6/Dec/2016

page 169 **EXERCISE 6C** question **10** should read:

10 When $P(z)$ is divided by $z^2 - 3z + 2$ the remainder is $4z - 7$.
Find the remainder when $P(z)$ is divided by: **a** $z - 1$ **b** $z - 2$.

The following erratum was made on 15/Nov/2016

page 415 **EXERCISE 15A.2** questions **3 b** and **c** should read:

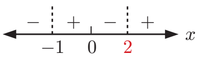
3 The integral $\int_{-3}^{3} e^{-\frac{x^2}{2}}\,dx$ is of considerable interest to statisticians.

- **a** Use the graphing package to help sketch $y = e^{-\frac{x^2}{2}}$ for $-3 \leqslant x \leqslant 3$.
- **b** Calculate the upper and lower rectangle sums for the interval $0 \leqslant x \leqslant 3$ using $n = 2250$.
- **c** Use the symmetry of $y = e^{-\frac{x^2}{2}}$ to find upper and lower rectangle sums for $-3 \leqslant x \leqslant 0$ for $n = 2250$.

The following erratum was made on 15/Jul/2015

page 459 **ANSWERS EXERCISE 2F** question **1 k** should read:

1 **k**



The following errata were made on or before 11/Jun/2015

page 8 **TABLE OF CONTENTS** Chapter 6 should include section E:

page 69 **CHAPTER 3 HISTORICAL NOTE** Should spell Bhaskhara correctly:

The final, complete solution as we know it today first came around 1100 AD, by another Hindu mathematician called **Bhaskhara**. He was the first to recognise that any positive number has two square roots, which could be negative or irrational. In fact, the quadratic formula is known in some countries today as 'Bhaskhara's Formula'.

page 82 **CHAPTER 3, SECTION D** Graphing quadratic functions of the form $y = ax^2 + bx + c$ diagram had an incorrect root:

QUADRATIC FUNCTIONS OF THE FORM $y = ax^2 + bx + c$

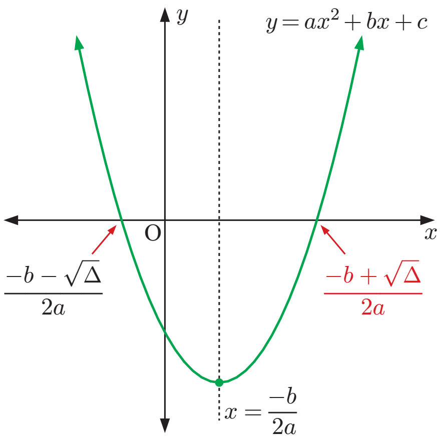
We now consider a method of graphing quadratics of the form $y = ax^2 + bx + c$ directly, without having to first convert them to a different form.

We know that the quadratic equation $ax^2 + bx + c = 0$ has solutions $\dfrac{-b-\sqrt{\Delta}}{2a}$ and $\dfrac{-b+\sqrt{\Delta}}{2a}$ where $\Delta = b^2 - 4ac$.

If $\Delta \geqslant 0$, these are the x-intercepts of the quadratic function $y = ax^2 + bx + c$.

The average of the values is $\dfrac{-b}{2a}$, so we conclude that:

- the axis of symmetry is $x = \dfrac{-b}{2a}$
- the vertex of the quadratic has x-coordinate $\dfrac{-b}{2a}$.



page 99 **REVIEW SET 3B** question **11** should read:

11 Find the values of k for which $kx^2 + kx - 2 = 0$ has:

page 156 **CHAPTER 6, SECTION A** Polynomial definition should also state that a_0 is constant:

A REAL POLYNOMIALS

A **polynomial function** is a function of the form

$$P(x) = a_n x^n + a_{n-1}x^{n-1} + ... + a_2x^2 + a_1x + a_0, \quad a_0,\ a_1,\ ....,\ a_n \text{ constant}, \quad a_n \neq 0.$$

We say that:
- x is the **variable**
- a_0 is the **constant term**
- a_n is the **leading coefficient** and is non-zero
- a_r is the **coefficient of** $\boldsymbol{x^r}$ for $r = 0, 1, 2, ..., n$
- n is the **degree** of the polynomial, being the highest power of the variable.

In **summation notation**, we write $P(x) = \sum_{r=0}^{n} a_r x^r$,

which reads: "the sum from $r = 0$ to n, of $a_r x^r$".

A **real polynomial** $P(x)$ is a polynomial for which $a_r \in \mathbb{R}$, $r = 0, 1, 2, ..., n$.