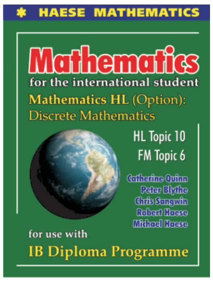

ERRATA

MATHEMATICS FOR THE INTERNATIONAL STUDENT

MATHEMATICS HL (Option): Discrete Mathematics

First edition - 2015 first reprint

The following erratum was made on 15/Jul/2019

page 199 **ANSWERS EXERCISE 1H Question 3 b**, should read:

3 **b** A is divisible by 16 $\Leftrightarrow$ $16 \mid (8a_3 + 4a_2 + 10a_1 + a_0)$

The following erratum was made on 10/Jun/2016

page 207 **ANSWERS EXERCISE 2A Question 10**, should read:

10 The graph G is r-regular.

$$\therefore \quad \sum \deg(V_i) = \text{number of vertices} \times r$$
$$= pr$$
$$\text{But} \quad \sum \deg(V_i) = 2 \times \text{number of edges}$$
$$= 2q$$
$$\therefore \quad 2q = pr$$
$$\therefore \quad q = \frac{pr}{2}$$

The following erratum was made on 25/May/2016

page 52 **SECTION D Example 23**, should read:

Example 23

Prove that $\sqrt{2}$ is irrational.

Proof: (By contradiction)

Suppose that $\sqrt{2}$ is rational.

$\therefore \quad \sqrt{2} = \frac{p}{q}$ where $p, q \in \mathbb{Z}^+$, $\gcd(p, q) = 1$

Since $\gcd(p, q) = 1$, there exist $r, s \in \mathbb{Z}$ such that $rp + sq = 1$

Hence, $\sqrt{2} = \sqrt{2}(rp + sq) = (\sqrt{2}p)r + (\sqrt{2}q)s$

$\therefore \quad \sqrt{2} = (\sqrt{2}\sqrt{2}q)r + (\sqrt{2}\,\frac{p}{\sqrt{2}})s$ {using $\sqrt{2} = \frac{p}{q}$}

$\therefore \quad \sqrt{2} = 2qr + ps$

$\therefore \quad \sqrt{2}$ is an integer {since $p, q \in \mathbb{Z}^+$, and $r, s \in \mathbb{Z}$}

This is a contradiction, so $\sqrt{2}$ must be irrational.

We saw a different proof for the irrationality of $\sqrt{2}$ earlier.