ERRATA
MATHEMATICS FOR AUSTRALIA 11
Specialist Mathematics
Worked Solutions

First edition - 2016

The following errata was made on 11/May/2020

page 247 EXERCISE 6E, question 2 should read:

2 \( P_n \) is: The product of \( n \) odd integers is odd for all \( n \in \mathbb{Z}, \ n \geq 2 \).

Proof: (By the principle of mathematical induction)

(1) Let \( p_1 \) and \( p_2 \) be odd integers.
Then there exist \( q_1, q_2 \in \mathbb{Z} \) such that \( p_1 = 2q_1 + 1 \) and \( p_2 = 2q_2 + 1 \).
Now \( p_1p_2 = (2q_1 + 1)(2q_2 + 1) \)
\[ = 4q_1q_2 + 2q_1 + 2q_2 + 1 \]
\[ = 2(2q_1q_2 + q_1 + q_2) + 1 \quad \text{which is odd.} \]
\[ \therefore \ P_2 \text{ is true.} \]

(2) If \( P_k \) is true, then the product of \( k \) odd integers is odd.
Let \( p_1, p_2, \ldots, p_k, \) and \( p_{k+1} \) be odd integers.
Then there exist \( q, r \in \mathbb{Z} \) such that \( p_1p_2\ldots p_k = 2q + 1 \) \{using \( P_k \}\)
and \( p_{k+1} = 2r + 1 \)
Now \( p_1p_2\ldots p_kp_{k+1} = (2q + 1)(2r + 1) \)
\[ = 4qr + 2q + 2r + 1 \]
\[ = 2(2qr + q + r) + 1 \quad \text{which is odd.} \]
\[ \therefore \ P_{k+1} \text{ is also true.} \]

Since \( P_2 \) is true, and \( P_{k+1} \) is true whenever \( P_k \) is true,
\( P_n \) is true for all \( n \in \mathbb{Z}, \ n \geq 2 \). \{principle of mathematical induction\}

The following erratum was made on 28/Apr/2020

page 85 EXERCISE 3L, question 3 a ii should read:

3 a i \( \overrightarrow{PC} = \overrightarrow{AP} = r, \ \overrightarrow{DP} = \overrightarrow{PB} = s \)
ii \( \overrightarrow{AB} = \overrightarrow{AP} + \overrightarrow{PB}, \ \overrightarrow{DC} = \overrightarrow{DP} + \overrightarrow{PC} \)
\[ = r + s \quad \quad \quad = s + r \]
\[ = r + s \]
The following errata were made on 21/Feb/2020

page 136 EXERCISE 4I, question 2 a text alongside second diagram should read:

\[ \cos x = 1 \quad \text{when} \]
\[ x = 0 \text{ or } 2\pi \]
\[ \{0 \leq x \leq 2\pi\} \]

\[ \therefore x = 0, \frac{2\pi}{3}, \frac{4\pi}{3}, \text{or } 2\pi. \]

page 137 EXERCISE 4I, question 2 d text alongside diagrams should read:

\[ \sin 2x = 0 \quad \text{or} \quad \cos 2x = \frac{1}{2} \]

\[ \sin 2x = 0 \quad \text{when} \]
\[ 2x = 0, \pi, 2\pi, 3\pi, \]
\[ \text{or } 4\pi \]
\[ \{0 \leq 2x \leq 4\pi\} \]

\[ \therefore 2x = 0, \frac{\pi}{4}, \pi, \frac{5\pi}{4}, 2\pi, \frac{7\pi}{4}, 3\pi, \frac{11\pi}{4}, \text{or } 4\pi \]
\[ \{0 \leq 2x \leq 4\pi\} \]

page 287 EXERCISE 7G.2, question 3 b last line should read:

\[ 3 \quad b \quad \mu \left( \frac{z_1}{z_2} \right)^* \quad \text{for } z_2 \neq 0 \quad \text{\{using a\}} \]

The following erratum was made on 12/Jul/2019

page 289 EXERCISE 7G.2, question 8 b does not require \( a \) to not be equal to \(-1\):

\[ w \quad \text{is purely imaginary if} \]
\[ a^2 - b^2 - 1 = 0 \quad \text{and} \quad 2ab \neq 0 \]

that is, if \( a^2 - b^2 = 1 \)

and neither \( a \) nor \( b \) is zero.