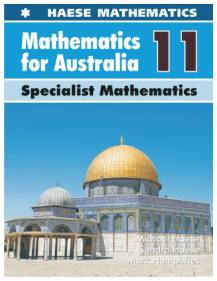


ERRATA

MATHEMATICS FOR AUSTRALIA 11

Specialist Mathematics

First edition - 2016 second reprint

The following errata were made on 7/Dec/2016

page 249 **ANSWERS EXERCISE 2C,** question **2** should read:

2 **Hint:** Use radius-tangent and chords of a circle theorems.

page 250 **ANSWERS EXERCISE 2H,** questions **8** and **10** should read:

8 **Hint:** Use chords of a circle theorem.
9 **Hint:** Use equal corresponding angles.
10 **Hint:** Show that XY subtends equal angles at B and C.

page 250 **ANSWERS EXERCISE 2I,** question **9** should read:

9 **Hint:** Show $\triangle$s AXC and DXB are similar.

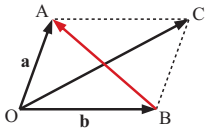
page 250 **ANSWERS REVIEW SET 2B,** remove hint for question **8**.

page 253 **ANSWERS EXERCISE 3G.2,** question **4 b** should find the ratio of how the line segment is divided, not the vector:

4 **a** $\overrightarrow{PQ} = -\frac{2}{3}\overrightarrow{QR}$ **b** P divides [QR] in the ratio 2 : 1.

page 254 **ANSWERS EXERCISE 3J,** question **12 b** hint should be:

12 **a** **Hint:** Square both sides.
b Consider the parallelogram. Find $\overrightarrow{AB}$ and $\overrightarrow{OC}$, etc.



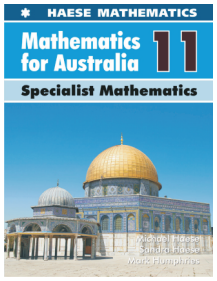
page 254 **ANSWERS EXERCISE 3K,** question **3** should read:

3 $\mathbf{i} + 4\mathbf{j}$. The component of $\mathbf{a}$ in the direction of $\mathbf{b}$ is equal to $\mathbf{b}$.

page 264 **ANSWERS REVIEW SET 5A,** question **24** should read:

24 **a** $A^{-1} = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$ **b** $B^{-1} = \begin{bmatrix} -\frac{1}{2} & \frac{\sqrt{3}}{2} \\ \frac{\sqrt{3}}{2} & \frac{1}{2} \end{bmatrix}$

c $B^{-1}A^{-1} = \begin{bmatrix} \frac{\sqrt{3}}{2} & \frac{1}{2} \\ \frac{1}{2} & -\frac{\sqrt{3}}{2} \end{bmatrix}$



ERRATA

MATHEMATICS FOR AUSTRALIA 11

Specialist Mathematics

First edition - 2016 first reprint

The following errata were made on 10/Jun/2016

page 101 **CHAPTER 3 SECTION L,** USEFUL TOOLS IN VECTOR PROOF should read:

USEFUL TOOLS IN VECTOR PROOF

- If $\mathbf{a} = k\mathbf{b}$ where k is a scalar then $\mathbf{a}$ and $\mathbf{b}$ are parallel, and $|\mathbf{a}| = |k||\mathbf{b}|$.
- If M is the midpoint of [AB] then $\overrightarrow{OM} = \frac{1}{2}\mathbf{a} + \frac{1}{2}\mathbf{b}$.
- To prove $\mathbf{a}$ is perpendicular to $\mathbf{b}$, show that $\mathbf{a} \bullet \mathbf{b} = 0$.
- Properties of scalar product:
  1. $\mathbf{a} \bullet \mathbf{b} = \mathbf{b} \bullet \mathbf{a}$ for any two vectors $\mathbf{a}$ and $\mathbf{b}$.
  2. $\mathbf{a} \bullet \mathbf{a} = |\mathbf{a}|^2$ for any vector $\mathbf{a}$.
  3. $\mathbf{a} \bullet (\mathbf{b} + \mathbf{c}) = \mathbf{a} \bullet \mathbf{b} + \mathbf{a} \bullet \mathbf{c}$ for any vectors $\mathbf{a}$, $\mathbf{b}$, and $\mathbf{c}$.
  4. $(\mathbf{a} + \mathbf{b}) \bullet (\mathbf{c} + \mathbf{d}) = \mathbf{a} \bullet \mathbf{c} + \mathbf{a} \bullet \mathbf{d} + \mathbf{b} \bullet \mathbf{c} + \mathbf{b} \bullet \mathbf{d}$.

page 156 **CHAPTER 5 SECTION D,** should include alternate notation for determinants:

For the matrix $\mathbf{A} = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$:

- the value $ad - bc$ is called the **determinant** of matrix $\mathbf{A}$, denoted $\det \mathbf{A}$ or $|\mathbf{A}|$
- if $\det \mathbf{A} \neq 0$, then $\mathbf{A}$ is **invertible** or **non-singular**, and $\mathbf{A}^{-1} = \dfrac{1}{\det \mathbf{A}} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$
- if $\det \mathbf{A} = 0$, then $\mathbf{A}$ is **singular**, and $\mathbf{A}^{-1}$ does not exist.

page 204 **CHAPTER 6 EXERCISE 6G,** question **1 a** should read:

1 Use the principle of mathematical induction to prove the following propositions:

a $3^n \geqslant 1 + 2n$ for all integers $n \geqslant 0$

b $n! \geqslant 2^n$ for all $n \in \mathbb{Z}$, $n \geqslant 4$

c $8^n \geqslant n^3$ for all $n \in \mathbb{Z}^+$

page 249 **ANSWERS REVIEW SET 1B,** question **1 b** should read:

1 **a** 56 **b** $n(n-1)$, $n \geqslant 2$ **c** 36

page 249 **ANSWERS EXERCISE 2C,** question **3** should read:

3 **Hint:** Use angle between a tangent and a radius, then use congruence.

page 250 **ANSWERS EXERCISE 2H,** questions **8** and **10** should read:

8 **Hint:** Join [OX] and [OY].

9 **Hint:** Use equal corresponding angles.

10 **Hint:** Show that $\widehat{\text{YBX}} = \widehat{\text{XCY}}$.

page 250 **REVIEW SET 2B,** question **8** should read:

8 **Hint:** Show $\triangle$OQR is isosceles. Let $\widehat{\text{PQR}} = \alpha$.

page 253 **ANSWERS EXERCISE 3H,** question **6** should read:

6 ≈ 0.599 N, on a bearing of $\approx 207^\circ$ from A.

page 253 **ANSWERS EXERCISE 3J,** question **4** should mention:

4 **Note:** The negative of these vectors are also valid answers.

a $\begin{pmatrix} 8 \\ 6 \end{pmatrix}$ **b** $\begin{pmatrix} 3 \\ 3 \end{pmatrix}$ **c** $\begin{pmatrix} -\frac{4}{\sqrt{10}} \\ \frac{12}{\sqrt{10}} \end{pmatrix}$ **d** $\begin{pmatrix} -2 \\ 4 \end{pmatrix}$

page 263 **ANSWERS EXERCISE 5L,** question **5 b ii** should read:

5 **a** **i** $\begin{bmatrix} 1 & 0 \\ 0 & \frac{2}{3} \end{bmatrix}$ **ii** A dilation parallel to the y-axis with scale factor $\frac{2}{3}$.

b **i** $\begin{bmatrix} \frac{1}{2} & -\frac{\sqrt{3}}{2} \\ -\frac{\sqrt{3}}{2} & -\frac{1}{2} \end{bmatrix}$ **ii** A reflection in the line $y = \left(\tan \frac{5\pi}{6}\right) x$.

page 264 **ANSWERS REVIEW SET 5A,** question **21 a** should read:

21 **a** a reflection in the line $y = \left(\tan \frac{\pi}{12}\right) x$

page 265 **ANSWERS REVIEW SET 5B,** question **23 c** should read:

23 **b** The image is a parallelogram. The sense and area remain the same. **c** $\mathbf{A}^{-1} = \begin{bmatrix} 1 & -2 \\ 0 & 1 \end{bmatrix}$

page 266 **ANSWERS EXERCISE 7B,** question **1 f** should read:

1 **a** 0.52 **b** $0.\overline{714\,285}$ **c** $0.\overline{307\,692}$

d 0.6875 **e** 0.025

f $0.\overline{411\,764\,705\,882\,352\,9}$

Note: Due to the limited number of digits that your calculator may display, $\frac{7}{17}$ may appear to neither terminate nor recur.

page 268 **ANSWERS EXERCISE 7I.1,** question **8 b** should read:

8 **b** $\mathcal{Re}(w) = 0$ p.v. $a \neq 1$

If $a = 1$, $\mathcal{Re}(w)$ is undefined.