The following erratum was made on 25/May/2020

page 137 INVESTIGATION 2 Question 3 b, should read:

3 Use the midpoint rule to estimate:

\[ a \int_{0}^{2} \sin \left( x^2 \right) \, dx \]

\[ b \] the area enclosed between \( y = \sin \left( x^2 \right) \), the \( x \)-axis, and the vertical lines \( x = 0 \) and \( x = 2 \).

The following erratum was made on 21/Feb/2020

page 300 ANSWERS EXERCISE 1C Question 5 e, should read:

5 e

\[ y = \ln(x^2) + 2 \]

\[ y = 2 \ln x \]

The following erratum was made on 23/Dec/2019

page 319 ANSWERS EXERCISE 5D Question 5 b, should read:

5 a \( C_1 \) is \( y = 3 \sin \left( \frac{4 \pi}{10} \right) \), \( C_2 \) is \( y = \sin \left( \frac{4 \pi}{10} \right) \) \b 40 \text{ units}

The following erratum was made on 22/Oct/2019

page 331 ANSWERS EXERCISE 9F.2 Question 2, should read:

1 \( \approx 8070 \) people

2 865 trial runs
First edition - 2017 first reprint

The following errata were made on 15/May/2019

page 34 EXERCISE 3F Question 1, should have domain:

1  The quantity of a chemical in human skin which is responsible for its ‘elasticity’ is given by

\[ Q(t) = 100 - 10\sqrt{t} \]

where \( t \) is the age of a person in years, \( 0 \leq t \leq 100. \)

page 104 EXERCISE 4A.2 Question 5 b, should have integrals with respect to \( x \):

5  b  For a positive function \( f(x) \),

\[ \int_2^5 f(x) \, dx = 10, \quad \text{and} \quad \int_5^9 f(x) \, dx = 12. \]

Find:

The following erratum was made on 22/Mar/2018

page 314 ANSWERS REVIEW SET 3B Question 15 b, should state that the answer is for part b:

\[ x = 2.11 \]

\[ \frac{1}{\sqrt{2}} \text{ metres} \]

The following erratum was made on 10/Jan/2018

page 329 ANSWERS REVIEW SET 8A Question 1 a, should have interval from 4 to 4.5 frequency = 13:

The following erratum was made on 05/Jan/2018

page 332 ANSWERS REVIEW SET 9A Questions 13 b and c, should read:

\[ a \quad 0.308 < p < 0.508 \]

\[ b \quad \text{width } \approx 0.0392 \]

\[ c \quad 2410 \text{ people} \]

The following errata were made on 25/Jul/2017

page 94 REVIEW SET 3A Question 15 b, should read:

15  b  Show that if \( \theta = \angle \text{APM} = \angle \text{BPM} \), then the length of cable is given by

\[ L(\theta) = 3 + \frac{2 - \cos \theta}{\sin \theta} \text{ km.} \]

page 312 ANSWERS EXERCISE 3F Question 6 e, should read:

\[ \text{Hint: You should find } \frac{dW}{dt} = \frac{1}{2} \ln 2 \times 20e^{-\frac{5t}{2}} \]
Chapter 3 EXAMPLE 11

The following errata were made on 13/Jun/2017

page 78 Chapter 3 EXAMPLE 11 Solution, second to last line should read:

\[ f'(x) \text{ has a local maximum when } x = -4 \text{ and a local minimum when } x \approx 2 \frac{1}{2}. \]

The following erratum was made on 3/Jul/2017

page 312 ANSWERS EXERCISE 3G Question 9 d, should read:

\[ e^{\theta} = \frac{\theta}{\sin \theta} \]

page 313 ANSWERS REVIEW SET 3A Question 6 b, should read:

\[ f'(x) = 1 + \frac{1}{x}, \quad f''(x) = -\frac{1}{x^2} \]

\[ f(x) \text{ is increasing for all } x > 0 \text{ and is concave downwards for all } x > 0. \]

The following errata were made on 13/Jun/2017

page 26 REVIEW SET 1B Question 11, should read:

11 The temperature of a mug of water \( t \) minutes after it has been poured from a kettle is given by \( T = 60e^{-0.1t} + 20 \) °C.

Show that it will take \( 10 \ln 3 \) minutes for the temperature of the water to fall to 40°C.

page 312 Question 9, should read:

REVIEW SET 1B

page 313 Question 11, should read:

ANSWERS EXERCISE 3G

The following errata were made on 3/Jul/2017

page 312 Question 9, should read:

ANSWERS REVIEW SET 3A

6 a \( x > 0 \)

b \( f'(x) = 1 + \frac{1}{x}, \quad f''(x) = -\frac{1}{x^2} \)

\[ f(x) \text{ is increasing for all } x > 0 \text{ and is concave downwards for all } x > 0. \]
ERRATA
MATHEMATICS FOR AUSTRALIA 12
Mathematical Methods

First edition - 2016 initial print

The following errata were made on 27/Jan/2017

page 60 Chapter 3 Opening problem Graph should be:

![Graph showing the trajectory equation](image)

page 301 ANSWERS REVIEW SET 1A Question 2 c, should read:

2 a 3 b -2 c \( \frac{5}{7} \)

3 a ln 7 b \( \frac{1}{7} \) c \( \frac{7}{7} \)

The following errata were made on 30/Jan/2017

page 69 Section 3D Explanation should read:

When a curve, or part of a curve, has shape:

we say that the curve is **concave downwards**

we say that the curve is **concave upwards**.

page 108 Section 4C Explanation should keep naming consistent:

Consider the narrow strip between \( t = x \) and \( t = x + h \). The area of this strip is \( A(x + h) - A(x) \), but we also know it must lie between a lower and upper rectangle on the interval \( x \leq t \leq x + h \) of width \( h \).

\[
\text{area of lower rectangle} \leq A(x + h) - A(x) \leq \text{area of upper rectangle}
\]

If \( f(t) \) is increasing on this interval then

page 312 ANSWERS EXERCISE 3G Question 9 e ii, should read:

9 e ii Walk from P to R.

page 326 ANSWERS EXERCISE 8B.1 Question 4 b, should read:

4 a \( \frac{1}{10} \) b \( \frac{1}{2} \)

page 327 ANSWERS EXERCISE 8B.2 Question 5 c, should read:

5 a If \( k = \frac{1}{2}, \ f(x) < 0 \) b \( k = \frac{1}{3} \) c \( \frac{11}{20} \)
The following erratum was made on 6/Dec/2016

page 308 ANSWERS EXERCISE 3C Question 7 d, should have correct coordinate label for local maximum:

\[ f(x) = e^{\sin x} \]

local maximum \( \left( \frac{\pi}{2}, e \right) \)

local minimum \( \left( \frac{3\pi}{2}, e \right) \)

\[ f(x) = e^{\sin x} \]

The following erratum was made on 9/Jan/2017

page 67 EXERCISE 3B Question 8, should read:

8 Suppose \( f(x) = \frac{x + k}{x^2 + k} \) is never increasing. What range of values could the constant \( k \) have?

page 304 ANSWERS EXERCISE 2E Question 1 d, should read:

\[ \frac{dy}{dx} = \frac{2x + 1}{2\sqrt{2(1 - 2x)^2}} \]

page 307 ANSWERS EXERCISE 3B Question 8, should read:

8 \(-1 \leq k \leq 0\)