First edition - 2017 initial print

The following erratum was made on 29/Apr/2020

page 272 CHAPTER 11 EXAMPLE 15, second line of solution should read:

Let BT be \( x \) m and NT be \( h \) m.
\[ \angle ABT = 41.2^\circ - 29.7^\circ \quad \{\text{exterior angle of } \triangle ABT\} \]
\[ = 11.5^\circ \]
We find \( x \) in \( \triangle ABT \) using the sine rule:
\[ \frac{x}{\sin 29.7^\circ} = \frac{1473}{\sin 11.5^\circ} \]
\[ \therefore \quad x = \frac{1473}{\sin 11.5^\circ} \times \sin 29.7^\circ \]
\[ \approx 3660.62 \]

The following erratum was made on 12/Feb/2020

page 627 ANSWERS EXERCISE 13C, questions 8 a and 9 a should read:

8 a \[(a - b)(a + b) = b(a - b) \quad \not\Rightarrow \quad a + b = b\]
\[2a = a \quad \not\Rightarrow \quad 2 = 1\]
\[b \quad \frac{4x - 40}{6 - x} = \frac{4x - 40}{13 - x} \quad \not\Rightarrow \quad 6 - x = 13 - x\]
9 a \[6x - 12 = 3(x - 2) \quad \not\Rightarrow \quad 6x - 12 + 3(x - 2) = 0\]
\[b \quad x(x - 6) = 3(-3) \quad \not\Rightarrow \quad x = 3 \quad \lor \quad x - 6 = -3\]
\[c \quad (x + 3)(2 - x) = 4 \quad \not\Rightarrow \quad x + 3 = 4 \quad \lor \quad 2 - x = 4\]

The following erratum was made on 11/Sep/2019

page 652 ANSWERS REVIEW SET 21A, question 9 c should use correct variable name:

9 c \[R \approx 56.1 \times 0.997^4\]

The following erratum was made on 10/Dec/2018

page 651 ANSWERS REVIEW SET 21A, question 6 a should have correct y-axis labels:
The following errata were made on 26/Nov/2018

page 51 CHAPTER 3 SECTION A, blue box Step 2 should not contain the word “coefficient”:

Start with the quadratic equation in the form \( ax^2 + bx + c = 0 \).

\text{Step 1:} \quad \text{If } a \neq 1, \text{ divide both sides by } a. \\
\text{Step 2:} \quad \text{Rearrange the equation so that only the constant is on the RHS.} \\
\text{Step 3:} \quad \text{Add to both sides } \left( \frac{\text{coefficient of } x}{2} \right)^2. \\
\text{Step 4:} \quad \text{Factorise the LHS.} \\
\text{Step 5:} \quad \text{Use the rule: } \text{If } X^2 = a \text{ then } X = \pm \sqrt{a}. \\

page 234 EXERCISE 9D, question 11 is an accidental duplicate, remove it and renumber subsequent questions accordingly:

11 Consider the expression \( (x^2 - y - 2y^2)^6 \). Find the term in which \( x \) and \( y \) are raised to the same power.

page 469 EXERCISE 20A.2, question 2 f should read:

2 Click on the icon to obtain a printable calendar for 2016 showing the weeks of the year. Each day is numbered.

Using a random number generator, choose a sample from the calendar of:

- a five different dates
- b a complete week starting with a Monday
- c a month
- d three different months
- e three consecutive months
- f five different dates during summer
- g four different Wednesdays.

Explain your method of selection in each case.

page 596 ANSWERS EXERCISE 4D.4, question 3 should have correct \( x \)-axis label at 1:

page 599 ANSWERS REVIEW SET 4B, question 9 a should not claim anything about the \( y \)-intercept:

9 \ a \ \text{\( x \)-intercepts } -9 \text{ and } -3

page 612 ANSWERS REVIEW SET 7B, question 13 a should sketch graph only on the domain specified in the question:

13 \ a \ \text{\( T \) (seconds)} \quad \text{\( T = 2b(n + 1) \)}

page 618 ANSWERS EXERCISE 9D, question 11 is an accidental duplicate, remove it and renumber subsequent questions accordingly.
There is a strong, negative, linear correlation between the petrol price and the number of customers. 

\[ y = -4.27x + 489 \]

This indicates that for every pence per litre the petrol price increases by, the number of customers will decrease by approximately 4.27.

\[ r \approx -0.924 \]

There is a strong, negative, linear correlation between the petrol price and the number of customers.
Example 6

Solve $2 \sin 3x = 1$ on the interval $0^\circ \leq x \leq 180^\circ$.

\[
2 \sin 3x = 1
\]
\[
\therefore \quad \sin 3x = \frac{1}{2}
\]

Since $0^\circ \leq x \leq 180^\circ$, $0^\circ \leq 3x \leq 540^\circ$
\[
\therefore \quad 3x = 30^\circ, 150^\circ, 390^\circ, \text{ or } 510^\circ
\]
\[
\therefore \quad x = 10^\circ, 50^\circ, 130^\circ, \text{ or } 170^\circ
\]

Start at angle $0^\circ$ and work around to $540^\circ$, noting down the angle every time you reach points A and B.