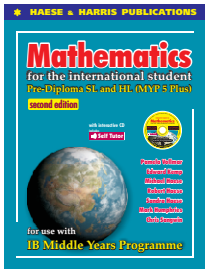


ERRATA

MATHEMATICS FOR THE INTERNATIONAL STUDENT

MYP 5 Plus (second edition)

Second edition - 2013 reprint

page 345 **TEXT** The explicit formula for the number of balls should be:

The sequence for the pattern of balls can be specified:

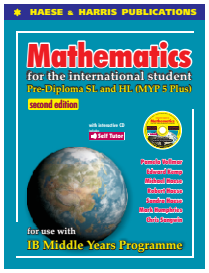
- **using words** "The set of all odd numbers starting with 1."
- **using an explicit formula** $u_n = 2n - 1$ generates all terms.
  u_n is called the ***n*th term** or the **general term**.

page 370 **TEXT** The rules for the zero vector should be:

ZERO VECTOR

The zero vector is $\mathbf{0} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$.

For any vector $\mathbf{a}$: $\mathbf{a} + \mathbf{0} = \mathbf{0} + \mathbf{a} = \mathbf{a}$.
$\mathbf{a} + (-\mathbf{a}) = (-\mathbf{a}) + \mathbf{a} = \mathbf{0}$.



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page 61 **REVIEW SET 2A**

1 e $-(x-2)^2$

page 77 **EXERCISE 3E**

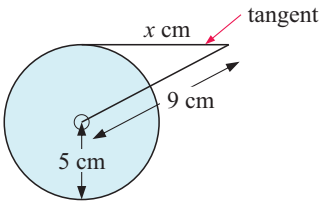
5 Find $\sqrt{11-6\sqrt{2}}$. (Reminder: $\sqrt{2}$ is never negative.)

page 80 **OPENING PROBLEM** change question numbering

a From where he stands on the fairway, how far is the caddy from the tee?
b If he knows the hole is 430 m long, how far is the caddy from the 150 m marker?
c How far does Karrie need to hit her ball with her second shot to reach the hole?

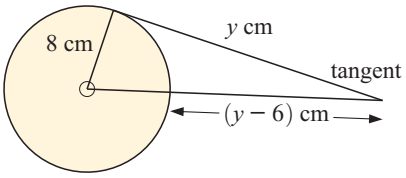
page 100 **REVIEW SET 4A** change diagram

9 b



page 102 **REVIEW SET 4B** change diagram

10 b



page 114 **EXAMPLE 12** solution

Shift {gradient formula} one line up

page 121 **EXERCISE 5E.1**

6 b Show that [AQ] has equation $cx - (b-2a)y = 2ac$.

page 156 **TEXT** (bullet points in the middle of page, change first sub-point)

- with centre the origin

page 181 **EXERCISE 8C** add legend to stem-and-leaf plot in question **3**

1 | 8 represents 18

page 196 **EXERCISE 8G** add legend to stem-and-leaf plot in question **3**

5 | 1 represents 51

page 280 **EXERCISE 11E.2**

2 **b** Why do your answers in **a** not add up to 1?

page 305 **EXAMPLE 13** solutions to part **a**, change second line to:

$$= \frac{2}{x}\left(\frac{x+2}{x+2}\right) + \left(\frac{1}{x+2}\right)\frac{x}{x}$$

page 343 **EXAMPLE 10** solutions to part **a**, change two last lines to:

$\therefore \quad 2x = -4 \quad \text{or} \quad -6$

$\therefore \quad x = -2 \quad \text{or} \quad -3$

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page 401 **EXAMPLE 15** second line of solution for part **a**, should be:

$= (2^x)^2 + 5(2^x) + 3(2^x) + 15 \qquad \{\text{using FOIL}\}$

page 453 **TEXT** change first line on the page to:

Point M(10, 14.5) lies on the principal axis, so $C = 10$.

page 460 **EXERCISE 18H**

6 In the given figure, find in terms of m:

page 486 **EXERCISE 20C**

9 **b** If $\mathbf{A} = \begin{pmatrix} a & b \\ c & a \end{pmatrix}$ where a, b and c are integers, and $\mathbf{A}^2 = 4\mathbf{A}$, find the possible values of a, b and c.

page 487 **EXERCISE 20C**

9 **c** Hence, write down all 2×2 matrices of the form $\begin{pmatrix} a & b \\ c & a \end{pmatrix}$ which satisfy the matrix equation $\mathbf{A}^2 - 4\mathbf{A} = \mathbf{O}$, where the elements of $\mathbf{A}$ are integers.

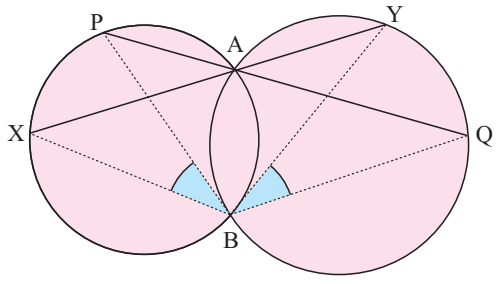
page 503 **EXERCISE 20H**

4 We showed earlier that if $\mathbf{AX} = \mathbf{B}$ then $\mathbf{X} = \mathbf{A}^{-1}\mathbf{B}$.
Prove that if $\mathbf{XA} = \mathbf{B}$ then $\mathbf{X} = \mathbf{BA}^{-1}$.

page 504 **EXERCISE 20H**

11 **c** Suppose $\mathbf{A} = \mathbf{A}^{-1}$.
i Show that $|\mathbf{A}| = \pm 1$. **ii** If $|\mathbf{A}| = 1$, show that $\mathbf{A} = k\mathbf{I}$ for some k.

page 520 **EXERCISE 21C** change diagram in question **10**

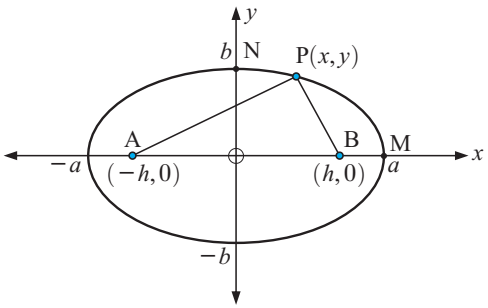


CHAPTER 23 (CD only) page 14 **EXERCISE 23F**

5 Susanne wishes to purchase 10 breeding female labradors from another breeder in the next county. The other breeder has 30 bitches for sale and knows that 4 of them have a problem with hip dysplasia but is not prepared to disclose this information.
Before the purchase takes place, Susanne decides to randomly sample three of the dogs and have them X-rayed to determine if they have the dysplasia problem. If none of the three has the problem she will buy them, together with 7 others selected at random. What is the chance that Susanne purchases the dogs and at least one of them has the hip problem?

CHAPTER 24 (CD only) page 13 **EXERCISE 24C**

3



page 557 **ANSWERS** **EXERCISE 1E**

12 at least 24 places

page 560 **ANSWERS** **EXERCISE 3D**

6 $\sqrt{6} = \dfrac{12}{5 - 6p^2}$ $\left(\text{or } \sqrt{6} = \dfrac{\sqrt{2} - \sqrt{3}}{p}\right)$

page 560 **ANSWERS** **REVIEW SET 3A**

6 $x = -2,\ y = 1$ or $x = -\frac{3}{5},\ y = \frac{10}{3}$

page 560 **ANSWERS** **EXERCISE 4A**

4 **b** $x = \sqrt{\frac{5}{2}}$

page 561 **ANSWERS** **EXERCISE 4C.1**

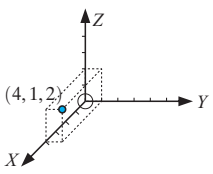
8 42.2 km
16 **a** 240 m **b** 40 m **c** 202 m

page 561 **ANSWERS** **EXERCISE 4E**

3 4.21 cm **8** 71 m

page 563 **ANSWERS** **EXERCISE 5G**

1 **i**



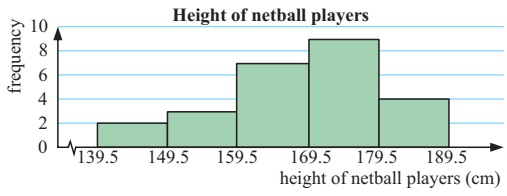
page 565 **ANSWERS** **EXERCISE 7C**

1 **a** $\mathbf{R}_{90}$: $(-3, -2)$, $\mathbf{R}_{-90}$: $(3, 2)$, $\mathbf{R}_{180}$: $(2, -3)$
b $\mathbf{R}_{90}$: $(1, 4)$, $\mathbf{R}_{-90}$: $(-1, -4)$, $\mathbf{R}_{180}$: $(-4, 1)$

page 567 **ANSWERS** **EXERCISE 8D**

1 **b** (Change graph title to "**Weights of a volleyball squad**")

3 **d**



page 568 **ANSWERS EXERCISE 8F**

5 b 77 runners

page 569 **ANSWERS EXERCISE 8H.2**

2 b i 49

page 569 **ANSWERS EXERCISE 8J.1**

1 e s takes all values into account, whereas the range and IQR each use only 2 values.

page 569 **ANSWERS EXERCISE 8J.2**

3 mean length $= 38.3$ cm, SD $= 2.66$ cm

page 569 **ANSWERS EXERCISE 8K**

2 b i 286

page 571 **ANSWERS EXERCISE 9C** (change question numbering)

4 b

page 571 **ANSWERS EXERCISE 9D**

7 10 m

page 572 **ANSWERS REVIEW SET 9B**

7 c $x = \dfrac{-5 \pm \sqrt{85}}{6}$ **9 a** $x = \dfrac{29 + \sqrt{865}}{6}$ **10** $-\frac{3}{2} + \sqrt{3}$ and $\frac{3}{2} + \sqrt{3}$ (delete "or .....")

page 572 **ANSWERS EXERCISE 10A.2** (change question number)

4 The 3 triangles do not exist.

page 572 **ANSWERS EXERCISE 10B.1**

2 32.9^o

page 573 **ANSWERS EXERCISE 10D**

10 $\tan(180^o - \theta) = -\tan\theta$

page 573 **ANSWERS EXERCISE 10F**

1 a $x \approx 11.1$
2 a $a \approx 28.4$ cm **b** $b \approx 52.2$ cm **c** $c \approx 5.23$ cm
3 a $\theta \approx 31.4^o$ **b** $\theta \approx 77.5^o$ or 102.5^o **c** $\theta \approx 43.6^o$ or 136.4^o
4 a $\widehat{\text{A}} \approx 49.1^o$ **b** $\widehat{\text{B}} \approx 71.6^o$ or 108.4^o **c** $\widehat{\text{C}} \approx 44.8^o$

page 573 **ANSWERS EXERCISE 10H**

Change question number **8 e** to **8 f**

page 573 **ANSWERS REVIEW SET 10A**

3 $\theta = 36^o$, $x \approx 12.4$, $y \approx 21.0$

page 573 **ANSWERS REVIEW SET 10B**

2 a $x \approx 38.7^o$ **b** $x \approx 37.1^o$
3 $x \approx 25.7$, $\alpha \approx 36.4^o$, $\theta \approx 53.6^o$
10 $x \approx 2.83$ or 15.56

page 578 **ANSWERS EXERCISE 13A**

2 b 113 m

page 582 **ANSWERS EXERCISE 14G.2**

1 g $x = \frac{7}{3}$ or 1

page 582 **ANSWERS EXERCISE 14I.1**

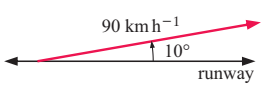
2 d no **e** no, as n would be < 0

page 582 **ANSWERS EXERCISE 14I.2**

7 c $u_n = 3 \times (\pm\sqrt{2})^{n-1}$ **d** $u_n = 6 \times (\pm\frac{1}{\sqrt{2}})^{n-1}$
9 c 118 098

page 583 **ANSWERS EXERCISE 15A**

3 d *Scale:*
1 cm $\equiv$ 30 km h^{-1}



page 583 **ANSWERS EXERCISE 15C**

4 Paolo is 25 km from his starting point at a bearing of 347^o.
5 Gina is 6.76 km from her starting point at a bearing of 006.60^o.

page 584 **ANSWERS EXERCISE 15D**

4 a The boat must head 25.5^o west of north.

page 586 **ANSWERS EXERCISE 16D**

1 b ii 160
4 d $\approx 56.5\%$ (add)

page 595 **ANSWERS EXERCISE 17E**

6 b $x = 10$ **c** 200 m^2 (change question numbering)

page 596 **ANSWERS EXERCISE 18B**

3 f $\cos(\frac{7\pi}{2}) = 0$, $\sin(\frac{7\pi}{2}) = -1$

page 597 **ANSWERS EXERCISE 18B**

Remove part **6 c**
Insert part **7 a – h** **7 a** $\frac{\sqrt{5}}{3}$ **b** $-\frac{3}{5}$ **c** $-\frac{2\sqrt{2}}{3}$ **d** $\frac{12}{13}$
e $\frac{4}{5}$ **f** $-\frac{\sqrt{15}}{4}$ **g** $\frac{\sqrt{7}}{4}$ **h** $-\frac{12}{13}$

page 597 **ANSWERS EXERCISE 18C.1**

2 d $\frac{3\sqrt{3}}{8}$

page 598 **ANSWERS EXERCISE 18E** (change question numbering)

4 $H \approx 4\sin 0.507(t - 9.3) + 6$ metres
5 Safe for about 65% to 66% of the time.

page 599 **ANSWERS REVIEW SET 18A** (change question numbering)

14 a $1 + \sqrt{3}$ **c i** $\frac{\sqrt{2} + \sqrt{6}}{4}$ **ii** $2 + \sqrt{3}$

page 601 **ANSWERS EXERCISE 19B**

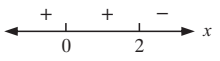
4 i $x \in [3, 8[$

page 601 **ANSWERS EXERCISE 19C**

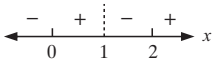
4 f $x > -\frac{5}{2}$ **j** $x \leqslant -3$ or $x > 1$

page 601 **ANSWERS REVIEW SET 19B**

1 b

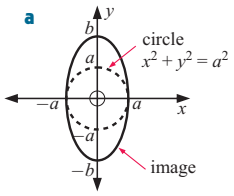


c



page 603 **ANSWERS EXERCISE 20G.1**

4 a



page 603 **ANSWERS REVIEW SET 20A** (change question numbering)

8 c 7 $units^2$

page 603 **ANSWERS REVIEW SET 20B**

9 a $(-2\sqrt{2}, -2\sqrt{2})$

page 604 **ANSWERS EXERCISE 21A** (change question numbering)

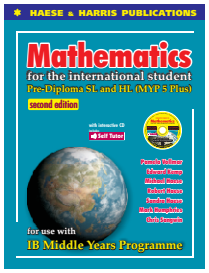
9 1 cm **10** 40 cm

page 604 **ANSWERS EXERCISE 21C**

5 b iii α^o {angles on the same arc}

page 16 **ANSWERS CHAPTER 23 EXERCISE 23B** (CD only)

3 a 60
12 a 180 **b** 25 **c** 30 **d** 55



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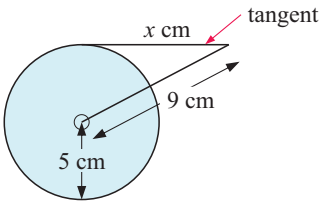
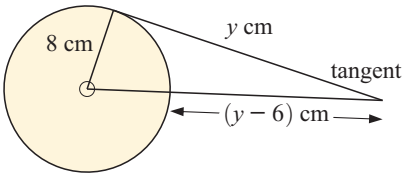
9 b



page 102 **REVIEW SET 4B** change diagram

10 b



page 114 **EXAMPLE 12** solution

Shift {gradient formula} one line up

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- with centre the origin

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1 | 8 represents 18

page 196 **EXERCISE 8G** add legend to stem-and-leaf plot in question **3**

5 | 1 represents 51

page 280 **EXERCISE 11E.2**

2 **b** Why do your answers in **a** not add up to 1?

page 305 **EXAMPLE 13** solutions to part **a**, change second line to:

$$= \frac{2}{x}\left(\frac{x+2}{x+2}\right) + \left(\frac{1}{x+2}\right)\frac{x}{x}$$

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$\therefore \quad x = -2 \quad \text{or} \quad -3$

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The sequence for the pattern of balls can be specified:

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page 401 **EXAMPLE 15** second line of solution for part **a**, should be:

$= (2^x)^2 + 5(2^x) + 3(2^x) + 15 \qquad \{\text{using FOIL}\}$

page 423 **EXERCISE 17B.3**

3 **f** $y = x^2 - 9x$

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Point M(10, 14.5) lies on the principal axis, so $C = 10$.

page 460 **EXERCISE 18H**

6 In the given figure, find in terms of m:

page 486 **EXERCISE 20C**

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page 487 **EXERCISE 20C**

9 **c** Hence, write down all 2×2 matrices of the form $\begin{pmatrix} a & b \\ c & a \end{pmatrix}$ which satisfy the matrix equation $\mathbf{A}^2 - 4\mathbf{A} = \mathbf{O}$, where the elements of $\mathbf{A}$ are integers.

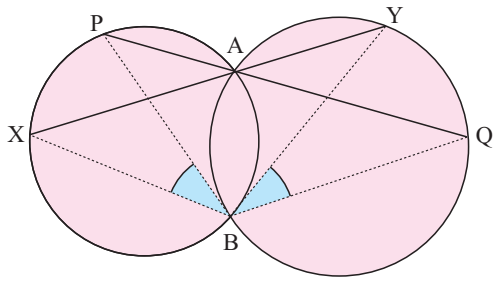
page 503 **EXERCISE 20H**

4 We showed earlier that if $\mathbf{AX} = \mathbf{B}$ then $\mathbf{X} = \mathbf{A}^{-1}\mathbf{B}$.
Prove that if $\mathbf{XA} = \mathbf{B}$ then $\mathbf{X} = \mathbf{BA}^{-1}$.

page 504 **EXERCISE 20H**

11 **c** Suppose $\mathbf{A} = \mathbf{A}^{-1}$.
i Show that $|\mathbf{A}| = \pm 1$. **ii** If $|\mathbf{A}| = 1$, show that $\mathbf{A} = k\mathbf{I}$ for some k.

page 520 **EXERCISE 21C** change diagram in question **10**

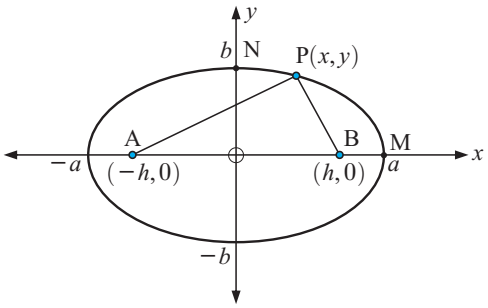


CHAPTER 23 (CD only) page 14 **EXERCISE 23F**

5 Susanne wishes to purchase 10 breeding female labradors from another breeder in the next county. The other breeder has 30 bitches for sale and knows that 4 of them have a problem with hip dysplasia but is not prepared to disclose this information.
Before the purchase takes place, Susanne decides to randomly sample three of the dogs and have them X-rayed to determine if they have the dysplasia problem. If none of the three has the problem she will buy them, together with 7 others selected at random. What is the chance that Susanne purchases the dogs and at least one of them has the hip problem?

CHAPTER 24 (CD only) page 13 **EXERCISE 24C**

3



page 557 **ANSWERS EXERCISE 1E**

12 at least 24 places

page 560 **ANSWERS EXERCISE 3D**

6 $\sqrt{6} = \dfrac{12}{5 - 6p^2}$ $\left(\text{or } \sqrt{6} = \dfrac{\sqrt{2} - \sqrt{3}}{p}\right)$

page 560 **ANSWERS REVIEW SET 3A**

1 **b** -24

6 $x = -2,\ y = 1$ or $x = -\frac{3}{5},\ y = \frac{10}{3}$

page 560 **ANSWERS EXERCISE 4A**

4 **b** $x = \sqrt{\frac{5}{2}}$

page 561 **ANSWERS EXERCISE 4C.1**

8 42.2 km

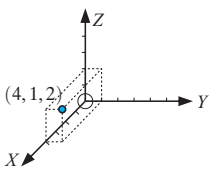
16 **a** 240 m **b** 40 m **c** 202 m

page 561 **ANSWERS EXERCISE 4E**

3 4.21 cm **8** 71 m

page 563 **ANSWERS EXERCISE 5G**

1 **i**



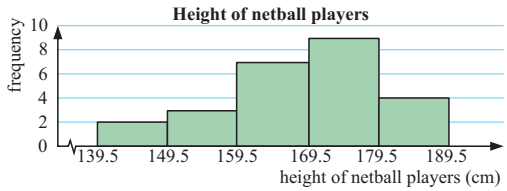
page 565 **ANSWERS EXERCISE 7C**

1 a $\mathbf{R}_{90}$: $(-3, -2)$, $\mathbf{R}_{-90}$: $(3, 2)$, $\mathbf{R}_{180}$: $(2, -3)$
b $\mathbf{R}_{90}$: $(1, 4)$, $\mathbf{R}_{-90}$: $(-1, -4)$, $\mathbf{R}_{180}$: $(-4, 1)$

page 567 **ANSWERS EXERCISE 8D**

1 b (Change graph title to "**Weights of a volleyball squad**")

3 d



page 567 **ANSWERS EXERCISE 8E.1**

5 d increase mean to 40.75

page 568 **ANSWERS EXERCISE 8F**

5 b 77 runners

page 569 **ANSWERS EXERCISE 8H.2**

2 b i 49

page 569 **ANSWERS EXERCISE 8J.1**

1 e s takes all values into account, whereas the range and IQR each use only 2 values.

page 569 **ANSWERS EXERCISE 8J.2**

3 mean length $= 38.3$ cm, SD $= 2.66$ cm

page 569 **ANSWERS EXERCISE 8K**

2 b i 286

page 571 **ANSWERS EXERCISE 9C** (change question numbering)

4 b

page 571 **ANSWERS EXERCISE 9D**

7 10 m

page 571 **ANSWERS EXERCISE 9E.2**

1 b $x = -1 \pm \sqrt{-3}$ $\therefore$ no real solutions exist

1 c $x = \dfrac{1 \pm \sqrt{-7}}{4}$ $\therefore$ no real solutions exist

page 572 **ANSWERS REVIEW SET 9B**

7 c $x = \dfrac{-5 \pm \sqrt{85}}{6}$ **9 a** $x = \dfrac{29 + \sqrt{865}}{6}$ **10** $-\frac{3}{2} + \sqrt{3}$ and $\frac{3}{2} + \sqrt{3}$ (delete "or .....")

page 572 **ANSWERS EXERCISE 10A.2** (change question number)

4 The 3 triangles do not exist.

page 572 **ANSWERS EXERCISE 10B.1**

2 32.9^o

page 573 **ANSWERS EXERCISE 10D**

10 $\tan(180^o - \theta) = -\tan\theta$

page 573 **ANSWERS EXERCISE 10F**

1 a $x \approx 11.1$
2 a $a \approx 28.4$ cm **b** $b \approx 52.2$ cm **c** $c \approx 5.23$ cm
3 a $\theta \approx 31.4^o$ **b** $\theta \approx 77.5^o$ or 102.5^o **c** $\theta \approx 43.6^o$ or 136.4^o
4 a $\widehat{\mathrm{A}} \approx 49.1^o$ **b** $\widehat{\mathrm{B}} \approx 71.6^o$ or 108.4^o **c** $\widehat{\mathrm{C}} \approx 44.8^o$

page 573 **ANSWERS EXERCISE 10H**

Change question number **8 e** to **8 f**

page 573 **ANSWERS** **REVIEW SET 10A**

3 $\theta = 36^o$, $x \approx 12.4$, $y \approx 21.0$

page 573 **ANSWERS** **REVIEW SET 10B**

2 **a** $x \approx 38.7^o$ **b** $x \approx 37.1^o$

3 $x \approx 25.7$, $\alpha \approx 36.4^o$, $\theta \approx 53.6^o$

10 $x \approx 2.83$ or 15.56

page 578 **ANSWERS** **EXERCISE 13A**

2 **b** 113 m

page 582 **ANSWERS** **EXERCISE 14G.2**

1 **g** $x = \frac{7}{3}$ or 1

page 582 **ANSWERS** **EXERCISE 14I.1**

2 **d** no **e** no, as n would be < 0

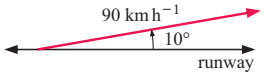
page 582 **ANSWERS** **EXERCISE 14I.2**

7 **c** $u_n = 3 \times (\pm\sqrt{2})^{n-1}$ **d** $u_n = 6 \times (\pm\frac{1}{\sqrt{2}})^{n-1}$

9 **c** 118 098

page 583 **ANSWERS** **EXERCISE 15A**

3 **d** *Scale:*
1 cm $\equiv$ 30 km h^{-1}



page 583 **ANSWERS** **EXERCISE 15C**

4 Paolo is 25 km from his starting point at a bearing of 347^o.

5 Gina is 6.76 km from her starting point at a bearing of 006.60^o.

page 584 **ANSWERS** **EXERCISE 15D**

4 **a** The boat must head 25.5^o west of north.

page 586 **ANSWERS** **EXERCISE 16D**

1 **b** **ii** 160

4 **d** $\approx 56.5\%$ (add)

page 595 **ANSWERS** **EXERCISE 17E**

6 **b** $x = 10$ **c** 200 m^2 (change question numbering)

page 596 **ANSWERS** **EXERCISE 18B**

3 **f** $\cos(\frac{7\pi}{2}) = 0$, $\sin(\frac{7\pi}{2}) = -1$

page 597 **ANSWERS** **EXERCISE 18B**

Remove part **6 c**

Insert part **7 a – h**

7 **a** $\frac{\sqrt{5}}{3}$ **b** $-\frac{3}{5}$ **c** $-\frac{2\sqrt{2}}{3}$ **d** $\frac{12}{13}$

e $\frac{4}{5}$ **f** $-\frac{\sqrt{15}}{4}$ **g** $\frac{\sqrt{7}}{4}$ **h** $-\frac{12}{13}$

page 597 **ANSWERS** **EXERCISE 18C.1**

2 **d** $\frac{3\sqrt{3}}{8}$

page 598 **ANSWERS** **EXERCISE 18E** (change question numbering)

4 $H \approx 4 \sin 0.507(t - 9.3) + 6$ metres

5 Safe for about 65% to 66% of the time.

page 599 **ANSWERS** **REVIEW SET 18A** (change question numbering)

14 **a** $1 + \sqrt{3}$ **c** **i** $\dfrac{\sqrt{2} + \sqrt{6}}{4}$ **ii** $2 + \sqrt{3}$

page 601 **ANSWERS** **EXERCISE 19B**

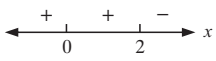
4 **i** $x \in [3, 8[$

page 601 **ANSWERS** **EXERCISE 19C**

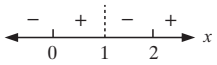
4 **f** $x > -\frac{5}{2}$ **j** $x \leqslant -3$ or $x > 1$

page 601 **ANSWERS** **REVIEW SET 19B**

1 **b**

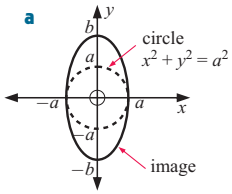


c



page 603 **ANSWERS** **EXERCISE 20G.1**

4 **a**



page 603 **ANSWERS** **REVIEW SET 20A** (change question numbering)

8 **c** 7 units^2

page 603 **ANSWERS** **REVIEW SET 20B**

9 **a** $(-2\sqrt{2}, -2\sqrt{2})$

page 604 **ANSWERS** **EXERCISE 21A** (change question numbering)

9 1 cm **10** 40 cm

page 604 **ANSWERS** **EXERCISE 21C**

5 **b** **iii** α^o {angles on the same arc}

page 16 **ANSWERS** **CHAPTER 23** **EXERCISE 23B** (CD only)

3 **a** 60

12 **a** 180 **b** 25 **c** 30 **d** 55