

MST124 Errata

Book A

Page 101 (Unit 1) - Solution to activity 2

The third line of the right-hand column of text should read '...Also, rounding 0.006 996 gives the same answer whether you're rounding it to 1, 2 or 3 significant figures, but in the first case you'd express the answer as 0.007, in the second case you'd express it as 0.007 0 and in the third case you'd express it as 0.007 00.'

Page 105 (Unit 1) - Activity 26f

The correct solution is:

$$\begin{aligned}5 - \frac{1}{x} + \frac{2}{y} &= \frac{5xy}{xy} - \frac{y}{xy} + \frac{2x}{xy} \\&= \frac{5xy - y + 2x}{xy}\end{aligned}$$

Page 132

The 6th line from the bottom should read 'horizontal line with **y** - intercept' and not 'horizontal line with x - intercept'.

Page 187 - Activity 9b

Last sentence to Activity 9b:

The rounding should be "...decreases by approximately 4×10^{-5} £/kg."

Page 197 (Unit 2) - Solution to Activity 30(d)

Delete "So the maximum height that a ball will reach above its starting position is 1.2m" and replace with "So the ball reaches its maximum height after 1.2 s."

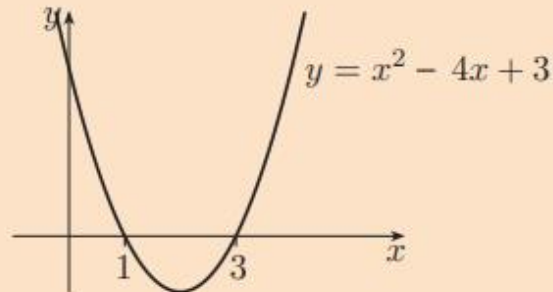
Page 244 (Unit 3) Activity 26 – Translating and scaling graphs applet.

In Book A, Unit 3, the following note should be added to the bottom of p.244:

"Note that if you scale the graph of a function horizontally by a factor of 0, then the whole graph moves onto the y-axis, so usually the result is not the graph of a function. So here we are interested in horizontal scalings by non-zero factors only."

Page 296 (Unit 3) – Example 13 Solving a quadratic inequality

The equation highlighted in the snip below, which is at the top of p296, should read $x^2 - 4x + 3$ (as it does on the graph).



From the sketch you can see that the value of the expression $x^2 - 4x + 3$ is greater than or equal to zero precisely when $x \leq 1$ or $x \geq 3$ (since the parabola lies above or on the x -axis for these values of x).

The solution set is $(-\infty, 1] \cup [3, \infty)$.

Book B

Page 36

Paragraph under Figure 32, line 4: 'y-coordinate' should be 'x-coordinate'.

Page 85, Activity 36

The heading should say 'using a double angle identity.....'

Page 99, Solution to Activity 36

The last line of the solution should include (-4) rather than (+4), so it should read:

$$(3 - 2\sqrt{2})(2 + \sqrt{2}) = 6 - \sqrt{2} - 4 = 2 - \sqrt{2}.)$$

Page 116, Example 6

The discriminant should start with $(-6)^2$.

Page 134

Line above Activity 22, the points in brackets should read (x, y, z).

Page 204

Last paragraph should read m s^{-1} for speed, where it currently says m^{-1} .

Page 217 in the online PDF version of Unit 6 or page 215 in the printed version of Book B, Unit 6.

20th line should read "as a third example, consider the graph in Figure 9 (c)"; not 9 (b)

Page 283 in the online PDF version of Unit 6 or page 281 in the printed version of Book B, Unit 6.

Figure 55: Equation (b) actually fits graph (c) and equation (c) fits graph (b).

Page 295, Solution to Activity 11 (d) in the online PDF version of Unit 6 or page 293 in the printed version of Book B, Unit 6.

Solution to Activity 11 (d), the derivative of $g(t)$ is printed as $f'(t)$, where it should read $g'(t)$.

Page 300 in the online PDF version of Unit 6 or page 298 in the printed version of Book B, Unit 6.

Solution to Activity 19: The axes should be labelled q and p (not x and y)

Page 304, Solution to Activity 29 (d) (iii) in the online PDF version of Unit 6 or page 302 in the printed version of Book B, Unit 6.

Should say 'By parts '(d) and (i) and (d) (ii)'

Book C

Page 76, Activity 35

Unfortunately in this activity we have inadvertently included a function f that we have not yet told you how to integrate. (You will learn how to integrate it in Unit 8.) Please insert the following at the beginning of the final sentence: 'Given that an antiderivative of this function f is $F(x)=8e^{(x/8)}$ (which you can check by using differentiation)'.

Page 90, part (e)

The derivatives should be $\frac{d}{du}$ not $\frac{d}{dx}$

Page 167, example 17

The 5th line of the solution is a repeat from the previous line.

Page 195, Figure 42

This refers to the graph of $v = \sin(x^2/150)$ when it should read $v = \sin(t^2/150)$.

Page 207 (Unit 8), solution to Activity 32 (b)

There is a minus sign missing at the beginning of the first line of the manipulation given in the note about the alternative way to proceed. It should read:

$$-\int_0^{-1} u^3 du = \int_{-1}^0 u^3 du.$$

Page 209 (Unit 8), solution to Activity 37

The fourth line of this solution should read:

$$-\frac{1}{5}(5x+2)e^{-5x} + \frac{1}{-5}e^{-5x} + c$$

Page 232, solution to example 1

"In general, to obtain the element in the i th row and j th column of AB , multiply each element in the i th row of A by the corresponding element in the j th row of B , and add the results."

This should be the j th column of B .

Page 275 (Unit 9)

Solution to Activity 20

The last line should say 'Therefore $AI = A$ and $IB = B$, as required.'

Solution to Activity 21(b)

The matrices should be named AB and BA instead of CD/DC .

Book D

Page 101 (Unit 11) Example 1 box

The second from last equation in the solution should read

$$p(0.1) = 1$$

Page 120 (Unit 11), 7th line from the bottom:

The text reads $p^3(a) = f^3(a)$, where it should be $p^{(3)}(a) = f^{(3)}(a)$.

Page 121 (Unit 11), two thirds of the way down the page:

"while the Taylor polynomial of degree 2 about 0 for f is" should read:

"while the Taylor polynomial of degree 2 about **a** for f is"

Page 136 (Unit 11)

Please delete the two lines of text following Activity 14.

Page 163 (Unit 11) Solution to Activity 2

Line 12 should read:

$$p(0.25) = 0.2500 \text{ and } p(0.5) = 0.5000.$$

Page 163 (Unit 11) Solution to Activity 3

There's an 'x' missing from the end of line 7, which should say:

$$p(x) = f(0) + f'(0)x$$

Handbook

Page 6

Index laws: whilst the unit mentions the fact that $\sqrt{a}\sqrt{b} = \sqrt{ab}$ is only true for positive a and b , the handbook does not actually include this constraint when it lists the index laws – it should do.

Page 20

There is a mistake at the top of the page:

The second equation should read $cx + dy = f$ (as shown below)

Simultaneous linear equations

A pair of **simultaneous linear equations** consists of two equations of the form

$$ax + by = e$$

$$cx + dy = f$$

that apply simultaneously. Here x and y are unknowns, and a , b , c , d , e and f are constants.

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Tutorial clips

Unit 12 Activity 31 - square roots of real numbers applet.

When the number "a" is increased to positive values, the applet shows the two roots labelled as negative numbers rather than one negative and one positive root.

Exercise Booklet 2

Pages 14-16, Solutions to Exercise 21

All of the solutions to Exercise 21 (a-e) should read '*Since the coefficient of x^2 is positive...*', where they currently read '*Since the coefficient of x is positive...*'

Exercise Booklet 8

Page 15, Solution to Ex 19 part (f)

4th and 5th lines of the solution should both have dx inside the brackets.

Exercise Book 10

Page 2, Exercise 5

Part (b) shows a recurrence system, not a closed form.

Exercise Book 12

Page 13, solution 24(b)

On the first line of the clip below, the first term under the square root should be 3^2

$$\begin{aligned} \text{(b)} \quad z &= \frac{-3 \pm \sqrt{3^2 - 4 \times 1 \times 13}}{2 \times 1} \\ &= \frac{-3 \pm \sqrt{-43}}{2} \end{aligned}$$

Page 17, solution 33(a)

On the bottom line of the clip below, the denominator in the first term on the RHS should be $(2i)^2$

Solution to Exercise 33

(a) We have

$$\sin \theta = \frac{e^{i\theta} - e^{-i\theta}}{2i} \quad \text{and} \quad \cos \theta = \frac{e^{i\theta} + e^{-i\theta}}{2}.$$

Therefore

$$\sin^2 \theta + \cos^2 \theta = \frac{(e^{i\theta} - e^{-i\theta})^2}{(2i)^2} + \frac{(e^{i\theta} + e^{-i\theta})^2}{2^2}$$