

Neill Hamilton

CCEA

GCSE

FURTHER MATHS REVISION BOOKLET

PURE MATHS 1



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The Author

Neill Hamilton will be well known to Mathematics teachers in Northern Ireland. Until his retirement in 2012, he was a teacher of GCSE Mathematics and Additional/Further Mathematics at a Northern Ireland comprehensive school. His previous publications include *Further Mathematics for CCEA GCSE*, and GCSE Mathematics Revision Booklets *M3* and *M4*, also published by Colourpoint.

Dedicated to Arlene, for everything she has done for me, and to Marley who is the best and most loyal friend I could ever have.



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Colourpoint Educational

An imprint of Colourpoint Creative Ltd

Colourpoint House
Jubilee Business Park
21 Jubilee Road
Newtownards
County Down
Northern Ireland
BT23 4YH

Tel: 028 9182 0505

E-mail: sales@colourpoint.co.uk

Web site: www.colourpointeducational.com

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Revision Exercise 1

1. Matrices A, B and C are defined as:

$$A = \begin{pmatrix} -2 & 5 \\ 3 & -4 \end{pmatrix} \quad B = \begin{pmatrix} 2 & -1 \\ 5 & -3 \end{pmatrix} \quad C = \begin{pmatrix} -6 & 4 \\ 3 & -2 \end{pmatrix}$$

Work out:

(a) $A - B$

Answer _____ [1]

(b) $3A + C$

Answer _____ [1]

(c) AB

Answer _____ [2]

2. Matrices P and Q are defined as:

$$P = \begin{pmatrix} 5 & -2 \\ -1 & -3 \end{pmatrix} \quad Q = \begin{pmatrix} -2 & -4 \\ 3 & -2 \end{pmatrix}$$

Solve:

(a) $X = P - Q$

Answer _____ [1]

(b) $3P + Y = Q$

Answer _____ [2]

(c) $Q - 2Z = 4P$

Answer _____ [2]

3. Differentiate:

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

Answer _____ [3]

(b) $\frac{3x^8}{4} + 2x - \frac{3}{x^4}$

Answer _____ [3]

(c) $\frac{5x^2}{6} + \frac{4}{9x^3}$

Answer _____ [2]

4. Work out $\int(6x - 5)^2 dx$

Answer _____ [4]

5. The equation of a curve is $y = 2x^3 - 5x^2 + x + 7$

Find:

(a) the gradient at the point (2, 5)

Answer _____ [3]

(b) the equation of the tangent to the curve at the point (2, 5)

Answer _____ [2]

(c) the equation of the normal to the curve at the point (2, 5).

Answer _____ [3]
