

CHAPTER 1:

Ex A

- 1) $28x + 35$ 2) $-15x + 21$ 3) $-7a + 4$ 4) $6y + 3y^2$
5) $2x - 4$ 6) $7x - 1$ 7) $x^2 + 5x + 6$ 8) $t^2 - 7t + 10$
9) $6x^2 + xy - 12y^2$ 10) $4x^2 + 4x - 24$ 11) $4y^2 - 1$ 12) $12 + 17x - 5x^2$

Ex B

- 1) $x^2 - 2x + 1$ 2) $9x^2 + 30x + 25$ 3) $49x^2 - 28x + 4$ 4) $x^2 - 4$
5) $9x^2 - 1$ 6) $25y^2 - 9$

CHALLENGE QUESTIONS

Question 1

$$b = -9, c = 6$$

$3x(4x + 1) - 2(6x - 3)$	M1	if expanded straight away allow one sign or arithmetic error eg $12x^2 + 3x - 12x - 6$ (Must have an x^2 term, 2 'x' terms and a constant term) Condone missing brackets eg $3x \times 4x + 1 - 2 \times 6x - 3$
$12x^2 + 3x - 12x + 6$	A1	

Question 2

$$a = 6, b = 2$$

Question 3

$$4(x + y)$$

Using 'the difference of two squares':

$$(1 + x + y)^2 - (1 - x - y)^2 = (1 + x + y + 1 - x - y)(1 + x + y - 1 + x + y) = 2(2x + 2y) = 4(x + y).$$

Question 4

$$n^2 + 4n + 4$$

Question 5

2:3

$(8x - y)^2 = (6x)^2 + (x + y)^2$	M1	oe Allow $(8x - y)(8x - y)$ and $(x + y)(x + y)$ Condone $6x^2$
Expands $(8x - y)^2$ to 4 terms with 3 correct from $64x^2 - 8xy - 8xy + y^2$	M1	oe If going straight to 3 terms must be $64x^2 - 16xy + ky^2$ ($k \neq 0$) or $ax^2 - 16xy + y^2$ ($a \neq 0$)
Expands $(x + y)^2$ to 4 terms with 3 correct from $x^2 + xy + xy + y^2$	M1	oe If going straight to 3 terms must be $x^2 + 2xy + ay^2$ ($a \neq 0$) or $bx^2 + 2xy + y^2$ ($b \neq 0$)
$27x^2 - 18xy$ ($= 0$) or $27x^2 = 18xy$ or better e.g.1 $9x^2 - 6xy$ ($= 0$) e.g.2 $3x^2 = 2xy$ Any correct factorisation of their $px^2 + qxy$ or correct division of their $px^2 = qxy$ by a multiple of x (p and q non zero) e.g.1 $9x(3x - 2y)$ ($= 0$) e.g.2 $3x(9x - 6y)$ ($= 0$) e.g.3 $27x = 18y$ e.g.4 $9x = 6y$	A1 M1	$64x - 16y = 36x + x + 2y$ or equivalent linear equation e.g.1 $64x - 16y - 36x = x + 2y$ e.g.2 $64x - 16y - x - 2y = 36x$ Correct collection and correct simplification of terms for their linear equation in x and y e.g. $27x = 18y$ To gain this mark there must have been some expansion of brackets seen
$3x = 2y$ or $\frac{x}{y} = \frac{2}{3}$ or $\frac{y}{x} = \frac{3}{2}$ or $x = \frac{2}{3}y$ or $y = \frac{3}{2}x$ or $\frac{x}{2} = \frac{y}{3}$ or $\frac{2}{x} = \frac{3}{y}$	A1	Must see M1 M1 M1 A1 Do not allow if a contradictory statement is also seen

Question 6

$$x = 2$$