Factorising 1

Common Factor

1. Factorise the following by taking out the common factor.

(a) $3x + 6 = 3(x + \ldots)$	(b) $4x + 12$	(c) $10x + 30$	(d) $7x + 28$
(e) $5x - 40$	(f) $6x - 12$	(g) $8x - 8$	(h) $9x - 72$
(i) $4x + 6$	(j) $6x + 8$	(k) $12x + 10$	(l) $4x + 2$
(m) $6x - 10$	(n) $8x - 4$	(o) $20x - 4$	(p) $4x - 22$

2. Factorise:

(a) $4 + 2x = 2(2 + \ldots)$	(b) $8 + 6x$	(c) $3 + 6x$	(d) $10 + 5x$
(e) $6 - 3x$	(f) $12 - 4x$	(g) $8 - 6x$	(h) $12 - 10x$

3. Factorise (look out for letters as your common factor!):

(a) $a + 2ab = a(1 + \ldots)$	(b) $3x + 2xy$	(c) $ab + b$	(d) $de + 3e$
(e) $2rt + r$	(f) $ab + 2a$	(g) $4a + 5ab$	(h) $3x + xy$
(i) $4ab + 2a = 2a(2b + \ldots)$	(j) $3x + 6xy$	(k) $5rt + 10t$	(l) $12ty - 6y$
(m) $5xy + 20y$	(n) $4de - 16d$	(o) $4d + 16de$	(p) $14xy - 7x$
(q) $20ab - 5a$	(r) $14qr + 20q$	(s) $25st - 15t$	

4. Factorise (squared and cubed terms!):

(a) $x^2 + 3x = x(x + \ldots)$	(b) $a^2 + 5a$	(c) $y^2 + 8y$	(d) $x^2 - 5xy$
(e) $w^2 - wx$	(f) $x^2 + xy$	(g) $3x^2 + x$	(h) $4x^2 + 4xy$
(i) $2x^2 + 10x$	(j) $4x^2 + 12x$	(k) $3x^2 + 18xy$	(l) $4a^2 - 15ab$
(m) $5x^2 - 10xy$	(n) $6a^2 + 12ab$	(o) $6y^2 - 8yz$	(p) $3a^3 + 21ab$
(q) $4a^3 - 6a^2$	(r) $2a^3 + 8a^2b$	(s) $3x^3 + 10x^2y$	(t) $9ab^3 + 3a^3b$

Difference of Two Squares

5. Factorise,

(a) $x^2 - 16 = (x + 4)(x \ldots)$ (b) $a^2 - 25$ (c) $y^2 - 100$ (d) $e^2 - 49$

(e) $t^2 - 225$ (f) $x^2 - 121$ (g) $y^2 - 36$ (h) $u^2 - 81$

(i) $x^2 - y^2$ (j) $a^2 - b^2$ (k) $r^2 - s^2$ (l) $y^2 - z^2$

(m) $4x^2 - 25y^2$ (n) $36a^2 - 49b^2$ (o) $64f^2 - 100g^2$ (p) $144e^2 - 225f^2$

(q) $x^4 - 1$ (r) $16 - x^4$

6. Factorise fully,

(a) $4a^2 - 16$
$= 4(a^2 - 4)$
$= 4(a + 2)(a - ..)$

(b) $3x^2 - 48$ (c) $5y^2 - 20$ (d) $2t^2 - 18$ (e) $6x^2 - 150$

(f) $3x^2 - 27$ (g) $2y^2 - 98$ (h) $4t^2 - 64$ (i) $3x^2 - 300$

(j) $5x^2 - 5$ (k) $3x^2 - 3$ (l) $4x^4 - 4$ (m) $2x^4 - 32$