

## Algebra Revision

### Exercise 1: Single Brackets

1. Multiply out the brackets :-

- |                 |                 |                   |                   |
|-----------------|-----------------|-------------------|-------------------|
| (a) $2(b + 4)$  | (b) $5(a + 1)$  | (c) $8(d - 6)$    | (d) $9(1 - g)$    |
| (e) $3(m + n)$  | (f) $7(c - t)$  | (g) $11(3 + y)$   | (h) $30(x - 5)$   |
| (i) $3(6p + 1)$ | (j) $5(3 - 4q)$ | (k) $8(11x - 7y)$ | (l) $a(b + 7)$    |
| (m) $g(h - 10)$ | (n) $x(6 + x)$  | (o) $k(3e + 8g)$  | (p) $4u(10u - v)$ |

2. Multiply out the brackets and collect like terms :-

- |                     |                      |                     |
|---------------------|----------------------|---------------------|
| (a) $2(q + 4) + 3$  | (b) $3(e + 1) + 6$   | (c) $5(t + 4) + 2$  |
| (d) $6(u + 2) - 7$  | (e) $4(p + 2) - 7$   | (f) $3(s + 6) - 20$ |
| (g) $2(f + 4) + 8f$ | (h) $9(h + 1) + h$   | (i) $4(k + 5) - 3k$ |
| (j) $6(z + 2) - 2z$ | (k) $10(5 + c) - 3c$ | (l) $7b + 7(b + 2)$ |

3. Simplify :-

- |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|
| (a) $3(m + 2) + 4(m + 1)$ | (b) $5(b + 2) + 2(b + 4)$ | (c) $8(c + 1) + 3(c + 6)$ |
| (d) $4(k - 1) + 2(k + 5)$ | (e) $6(g - 2) + 3(g + 4)$ | (f) $2(a - 6) + 7(a + 2)$ |

4. Simplify :-

- |                            |                            |                           |
|----------------------------|----------------------------|---------------------------|
| (a) $5(x + 1) - 2(x + 2)$  | (b) $8(x + 2) - 7(x + 2)$  | (c) $4(x + 6) - 3(x + 7)$ |
| (d) $4(2x + 1) - 3(x + 2)$ | (e) $7(3x + 4) - 4(x + 6)$ | (f) $8(x + 3) - 6(x - 1)$ |

5. Simplify :-

- |                    |                    |                     |
|--------------------|--------------------|---------------------|
| (a) $9 - 2(y + 4)$ | (b) $6 - 6(p - 1)$ | (c) $8 - (d - 1)$   |
| (d) $7 + 6(h + 2)$ | (e) $2 + 9(2 - c)$ | (f) $12 - 2(1 - u)$ |

## Exercise 2: Double Brackets

**Example 1:**  $(x + 3)(x - 4)$

	x	+3
x	$x^2$	$+3x$
-4	$-4x$	$-12$

$$\begin{aligned} &(x + 3)(x - 4) \\ &= x^2 + 3x - 4x - 12 \\ &= x^2 - x - 12 \end{aligned}$$

**Example 2:**  $(x - 2)(5 - x)$

	x	-2
+5	$5x$	$-10$
-x	$-x^2$	$+2x$

$$\begin{aligned} &(x - 2)(5 - x) \\ &= 5x - 10 - x^2 + 2x \\ &= -x^2 + 7x - 10 \end{aligned}$$

**Example 3:**  $(2x + 1)(x - 3)$

	2x	+1
x	$2x^2$	$+x$
-3	$-6x$	$-3$

$$\begin{aligned} &(2x + 1)(x - 3) \\ &= 2x^2 + x - 6x - 3 \\ &= 2x^2 - 5x - 3 \end{aligned}$$

1. Expand the brackets and simplify :-

- (a)  $(x+5)(x-2)$     (b)  $(y-1)(y+4)$     (c)  $(a-2)(a+3)$     (d)  $(b+2)(b-1)$   
 (e)  $(m-5)(m+3)$     (f)  $(3+n)(1-n)$     (g)  $(x+3)(2x-1)$     (h)  $(a-4)(5a+1)$   
 (i)  $(u-2)(3u+4)$     (j)  $(3x+5)(3x-5)$     (k)  $(7a+1)(2a-2)$     (l)  $(4h-3)(5h+2)$   
 (m)  $(x+y)(x+2y)$     (n)  $(x+y)(x-2y)$     (o)  $(x-y)(x+2y)$     (p)  $(x-y)(x-2y)$   
 (q)  $(a+b)(3a+4b)$     (r)  $(2p+q)(p-2q)$     (s)  $(5+2x)(2+x)$     (t)  $(2-a)(1-a)$   
 (u)  $(5-b)(3+2b)$     (v)  $(p-q)(q+p)$     (w)  $(1-y)(1+9y)$     (x)  $(1-4k)(1-5k)$

2. Calculate the area of each of these rectangles, in terms of the letters used :-

