Algebraic Expansion – Problem Set

1 Expand and simplify:

a $3(2x+5)$ **b** $4x(x-3)$ **c** $-2(3+x)$ **d** $-3x(x+y)$

e $2x(x^2-1)$ **f** $-x(1-x^2)$ **g** $-ab(b-a)$ **h** $x^2(x-3)$

2 Expand and simplify:

a $2(x+3)+5(x-4)$ **b** $2(3-x)-3(4+x)$ **c** $x(x+2)+2x(1-x)$

d $x(x^2+2x)-x^2(2-x)$ **e** $a(a+b)-b(a-b)$ **f** $x^3(x^2-3x+2)$

3 Expand and simplify:

a $(x+2)(x+5)$ **b** $(x-3)(x+4)$ **c** $(x+5)(x-3)$

d $(x-2)(x-10)$ **e** $(2x+1)(x-3)$ **f** $(3x-4)(2x-5)$

g $(2x+y)(x-y)$ **h** $(x+3)(-2x-1)$ **i** $(x+2y)(-x-1)$

4 Expand and simplify:

a $(x+7)(x-7)$ **b** $(3+a)(3-a)$ **c** $(5-x)(5+x)$

d $(2x+1)(2x-1)$ **e** $(4-3y)(4+3y)$ **f** $(3x-4z)(4z+3x)$

5 Expand and simplify:

a $(x+5)^2$ **b** $(2x+3)^2$ **c** $(x+y)^2$

d $(3x+4)^2$ **e** $(5+x^2)^2$ **f** $(3x+2z)^2$

6 Expand and simplify:

a $(x-3)^2$ **b** $(2-x)^2$ **c** $(3x-1)^2$

d $(x-y)^2$ **e** $(2x-5y)^2$ **f** $(ab-2)^2$

1 Expand and simplify:

a $(x+2)(x^2+x+4)$ **b** $(x+3)(x^2+2x-3)$

c $(x+3)(x^2+2x+1)$ **d** $(x+1)(2x^2-x-5)$

e $(2x+3)(x^2+2x+1)$ **f** $(2x-5)(x^2-2x-3)$

g $(x+5)(3x^2-x+4)$ **h** $(4x-1)(2x^2-3x+1)$

2 Expand and simplify:

a $x(x+2)(x+4)$ **b** $x(x-3)(x+2)$ **c** $x(x-4)(x-5)$

d $2x(x+2)(x+5)$ **e** $3x(x-2)(3-x)$ **f** $-x(2+x)(6-x)$

g $-3x(3x-1)(x+4)$ **h** $x(1-5x)(2x+3)$ **i** $(x-2)(x+2)(x-3)$

3 Expand and simplify:

a $(x+4)(x+3)(x+2)$ **b** $(x-3)(x-2)(x+4)$

c $(x-3)(x-2)(x-5)$ **d** $(2x-3)(x+3)(x-1)$

e $(3x+5)(x+1)(x+2)$ **f** $(4x+1)(3x-1)(x+1)$

g $(2-x)(3x+1)(x-7)$ **h** $(x-2)(4-x)(3x+2)$

4 State how many terms you would obtain by expanding the following:

a $(a+b)(c+d)$ **b** $(a+b+c)(d+e)$

c $(a+b)(c+d+e)$ **d** $(a+b+c)(d+e+f)$

e $(a+b+c+d)(e+f)$ **f** $(a+b+c+d)(e+f+g)$

g $(a+b)(c+d)(e+f)$ **h** $(a+b+c)(d+e)(f+g)$