# **EXPAND AND SIMPLIFY BRACKETS**

#### **Key Concepts**

#### **Expanding brackets**

Single: Where each term inside the bracket is multiplied by the term on the outside of the bracket. Double: Where each term in the first bracket is multiplied by all terms in the second bracket.

#### **Factorising expressions**

Putting an expression back into brackets. To "factorise fully" means take out the HCF.

#### Difference of two squares

When two brackets are repeated with the exception of a sign change. All numbers in the original expression will be square numbers.

**Sparx** U179 U768 U768 U365 U365 U178 U963 U858 U228 U960

	Examples	Quadratic expressions		
	· ·	Expand and simplify:	Factorise:	
	Linear expressions Expand and simplify where appropriate 1) 7 $(3 + a) = 21 + 7a$	1) $(p+2)(2p-1)$ = $2p^2 + 4p - p - 2$	3) $x^2 - 2x - 3$ = $(x - 3)(x + 1)$	
	2) $2(5 + a) + 3(2 + a) = 10 + 2a + 6 + 3a$ = 5a + 16	$=2p^{2}+4p^{2}-p^{2}$ $=2p^{2}+3p-2$	Factorise and solve:	
5	3) Factorise $9x + 18 = 9(x + 2)$	2) $(p+2)^2$	4) $x^{2} + 4x - 5 = 0$ (x - 1)(x + 5) = 0 Therefore the colutions are:	
	4) Factorise 6e <sup>2</sup> – 3e = <mark>3e(2e – 1)</mark>	(p+2)(p+2)	Therefore the solutions are: Either $x - 1 = 0$ x = 1	
		$= p^{2} + 2p + 2p + 4$ $= p^{2} + 4p + 4$	Or $x + 5 = 0$ x = -5	
<b>Key Words</b> (1) Expand and simplify (a) $3(2 - 7f)$ (b) $5(m - 2) + 6$ (c) $3(4 + t) + 2(5 + t)$				
	Expand 2) Factorise (a) 6m + 12t (b) 9t - 3p (c) 4d <sup>2</sup> - 2d   Factorise 3) Expand (5g - 4)(2g + 1) 5			
5				
8		<b>4)</b> (a) Factorise $x^2 - 8x + 15$ (b) Factorise and solve $x^2 + 7x + 10 = 0$		
	Solve 3) $10g^2 - 3g - 4$ 4) (a) $(x - 3)(x - 5)$ (b) $x = -2$ or $x = -5$ ANSWERS: 1) (a) $6 - 21f$ (b) $5m - 4$ (c) $22 + 5t$ 2) (a) $6(m + 2t)$ (b) $3(3t - p)$ (c) $2d(2d - 1)$			

# **REARRANGING EQUATIONS**

### **Key Concepts**

**Rearranging an equation:** Working with inverse operations to isolate a highlighted variable.

When rearranging we **undo the operations** starting from the last one.

sparx

**U585** 

**U144** 

Rearrange to make r the subject of the formulae :  $Q = \frac{2r - 7}{3}$  $\times 3$ 3Q = 2r - 7+7+7+73Q + 7 = 2r $\div 2$  $\frac{3Q + 7}{2} = r$ 

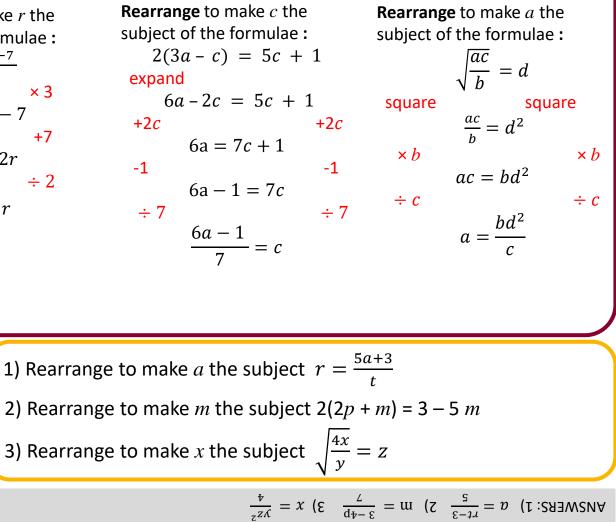
Key Words

Rearrange

Term

Inverse

### **Examples**



# **ADVANCED REARRANGING EQUATIONS**

