Expand and Simplify

1) $3(2x-5) = 6x - 15$

2) $-4(3p-q) = -12p + 4q$

3) $5(2p+3q) - 2(p+4q)$

$= 10p + 15q - 2p - 8q$

$= 8p + 7q$

4) $x(7x-5) + 2x(x+4)$

$= 7x^2 - 5x + 2x^2 + 8x$

$= 9x^2 + 3x$

Exercise C

Expand and simplify

1) $3(x+2) + 5(x+3)$

2) $4(p+2q) + 3(p+q)$

3) $3(x+2y) + 2(2x-y)$

4) $2(h+k) - 3(h-k)$

5) $5(x+6) - 2(x+4)$

Exercise C

1) $3(x+2)+5(x+3)$
$= 3x+6+5x+15$
$= 8x+21$

3) $3(x+2y)+2(2x-y)$
$= 3x+6y+4x-2y$
$= 7x+4y$

5) $5(x+6)-2(x+4)$
$= 5x+30-2x-8$
$= 3x+22$

2) $4(p+2q)+3(p+q)$
$= 4p+8q+3p+3q$
$= 7p+11q$

4) $2(h+k)-3(h-k)$
$= 2h+2k-3h+3k$
$= -h+5k$

Multiplying Brackets

1) $(x+7)(x+3)$
$= x^2+7x+3x+21$
$= x^2+10x+21$

2) $(2x-3)(5x+1)$
$= 10x^2-15x+2x-3$
$= 10x^2-13x-3$

3) $(a+b)(c+d)$
$= ac+bc+ad+bd$

Exercise

1) $(y+4)(y+3)$

$= y^2 + 4y + 3y + 12 = y^2 + 7y + 12$

2) $(2x+3)(3x+2)$

$= 6x^2 + 9x + 4x + 6 = 6x^2 + 13x + 6$

3) $(h+5)(k-2)$

$= hk + 5k - 2h - 10$

Trinomials

1) $(x+1)(x+2)(x+3)$

$= [x^2 + x + 2x + 2](x+3)$

$= [x^2 + 3x + 2](x+3)$

$$= \begin{array}{l} x^3 + 3x^2 + 2x \\ \quad\;\; + 3x^2 + 9x + 6 \\ \hline = x^3 + 6x^2 + 11x + 6 \end{array}$$

2) $(2x-3)(x+1)(x-2)$

$= [2x^2 - 3x + 2x - 3](x-2)$

$= [2x^2 - x - 3](x-2)$

$= 2x^3 - x^2 - 3x$

$$\begin{array}{rrrrr} & & -4x^2 & +2x & +6 \\ \hline = & 2x^3 & -5x^2 & -x & +6 \end{array}$$

Exercise

1) $(x+2)(x+3)(x+4)$

$= [x^2+2x+3x+6](x+4)$

$= [x^2+5x+6](x+4)$

$$\begin{array}{rrrrr} = & x^3 & +5x^2 & +6x & \\ & & +4x^2 & +20x & +24 \\ \hline = & x^3 & +9x^2 & +26x & +24 \end{array}$$

2) $(2x+3)(x+4)(2x+1)$

$= [2x^2+3x+8x+12](2x+1)$

$= [2x^2+11x+12](2x+1)$

$$\begin{array}{rrrrr} = & 4x^3 & +22x^2 & +24x & \\ & & +2x^2 & +11x & +12 \\ \hline = & 4x^3 & +24x^2 & +35x & +12 \end{array}$$

3) $(x-1)(x+2)(x-3)$

$= [x^2-x+2x-2](x-3)$

$= [x^2+x-2](x-3)$

$$= \quad x^3 + x^2 - 2x$$
$$\quad\quad -3x^2 - 3x + 6$$
$$= \quad x^3 - 2x^2 - 5x + 6$$

Exchange Rates

Normally expressed in form 1 : n

e.g £1 : 1.24 €

If you have the currency with the '1' then multiply by 'n' to covert to the other currency.

If you have the currency with the 'n' then divide by the 'n' to convert to the other currency.

Example Convert £24 into Euros

$$£24 \times 1.24 = £29.76$$

Convert 56 € into Pounds

$$\frac{56€}{1.24} = £45.16$$