## \*Trial and improvement.

 $x^3 - 2x = 67$  has a solution between 4 and 5. Use trial and improvement to find a solution to 1dp.

 $x^2 = \frac{1}{x} + 5$  has a solution between 2 and 3. Use trial and improvement to find a solution to 1dp.

#### Substitution.

D = 3s - 7t

If s = -4, t = 2. Work out the value of D.

 $E = T^2 - 2T$ 

Find the value of E when T = -3.

If P = -4 and Q = 30, work out the value of 'M'

$$M = \frac{Q(P+2)}{6}$$

## Expand and/or simplify.

- (i) 5p 4q + 3p + q
- (ii) 4(3x + 2)
- (iii) 4(x + 5) + 3(x 7)
- (iv) 3(2x-1)-2(2x-3)
- (v) (x + 7)(x 4)
- (vi) (x + 3y)(x + 2y)

### Factorise.

- (i) 2t + 6
- (ii) 8s 12t
- (iii) 6a 12b + 30
- (iv) 8x + 12y 16z
- (v)  $y^2 + y$
- (vi)  $2x + 3ax^3$

## Straight line graphs.

A straight line passes through (0, 5) and (3, 17). Find the equation of the line.

A straight line has the equation y = 2(3 - 4x).

Find the gradient and y-intercept of the line.

#### **Index Laws.**

Simplify

- (i)  $p^2 \times p^7$
- (ii)  $x^8 \div x^3$
- (iii)  $\frac{y^4 \times y^3}{y^5}$
- (iv)  $2t^2 \times 3r^3t^4$
- (v)  $(m^{-4})^{-2}$

### Nth terms.

Find the n<sup>th</sup> term and the 50<sup>th</sup> term of these sequences...

- (i) 2, 7, 12, 17, 22, ...
- (ii) 22, 19, 16, 13, 10, ...

The  $n^{th}$  term of a number sequence is given by  $(5 - n^2)$ . Find

- (iii) The first five terms of the sequence
- (iv) The 10<sup>th</sup> term
- (v) The 12<sup>th</sup> term

## Construct an equation.

The cost of hiring a car for *n* days is *C* pounds. Write down a formula for *C* in terms of *n*.

Red cards are worth 5 points each. Green cards are worth 3 points each. We have r red cards and g green cards. If our total number of points is N, Write down, in terms of r and g, a formula for N.

# Plot graph of a quadratic equation.

Copy and complete the table of values for  $y = x^2 + x$ .

x	-3	-2	-1	0	1	2	3
у	6	2		0		6	

Draw the graph of  $y = x^2 + x$  from x = -3 to x = 3.

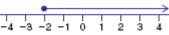
## Inequalities.

-6 < y < -3. If 'y' is an integer, write all its possible values.

Solve the inequalities

- (i) 3x + 2 > -7
- (ii) 4x 3 < 7

Write the inequality represented by ...



## Solve these linear equations.

- (i) 7x + 18 = 74
- (ii) 21 = 3(2x + 11)
- (iii) 4(2y 5) = 32
- (iv) 5p + 7 = 3(4 p)
- (v) 4(2x + 1) = 2(3 x)

# Rearranging algebraic expressions.

Make 't' the subject of the formula v=u+5t

Make 'a' the subject of the formula  $s = \frac{a}{4} + 8u$