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| **\*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 – 7tIf s = -4, t = 2. Work out the value of D.E = T2 -2TFind 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.**1. 5p – 4q + 3p + q
2. 4(3x +2)
3. 4(x + 5) + 3(x – 7)
4. 3(2x – 1) – 2(2x – 3)
5. (x + 7)(x – 4)
6. (x + 3y)(x + 2y)
 | **Factorise.**1. 2t + 6
2. 8s – 12t
3. 6a – 12b + 30
4. 8x + 12y – 16z
5. y2 + y
6. 2x + 3ax3
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| **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.**Simplify1. $p^{2}×p^{7}$
2. $x^{8}÷x^{3}$
3. $\frac{y^{4}×y^{3}}{y^{5}}$
4. $2t^{2}×3r^{3}t^{4}$
5. $\left(m^{-4}\right)^{-2}$
 | **Nth terms.**Find the nth term and the 50th term of these sequences...1. 2, 7, 12, 17, 22, ...
2. 22, 19, 16, 13, 10, ...

The nth term of a number sequence is given by (5 – n2). Find1. The first five terms of the sequence
2. The 10th term
3. The 12th 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 = x2 + x.Draw the graph of y = x2 + x from x = -3 to x = 3. | **Inequalities.**-6 < y < -3. If ‘y’ is an integer, write all its possible values.Solve the inequalities1. 3x + 2 > -7
2. 4x – 3 < 7

Write the inequality represented by ... | **Solve these linear equations.**1. $7x+18=74$
2. $21=3(2x+11)$
3. $4\left(2y-5\right)=32$
4. $5p+7=3(4-p)$
5. $4\left(2x+1\right)=2(3-x)$
 | **Rearranging algebraic expressions.**Make ‘t’ the subject of the formula$$v=u+5t$$Make ‘a’ the subject of the formula$$s=\frac{a}{4}+8u$$ |

\*Calculator allowed