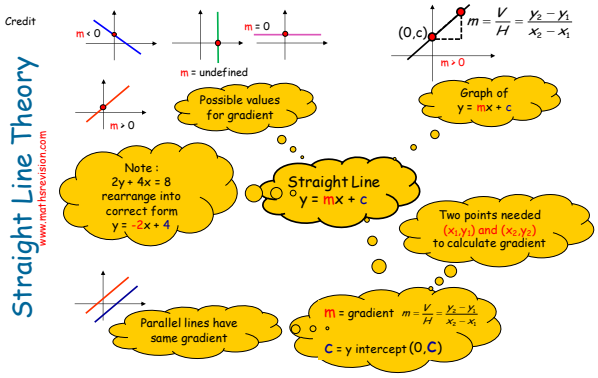
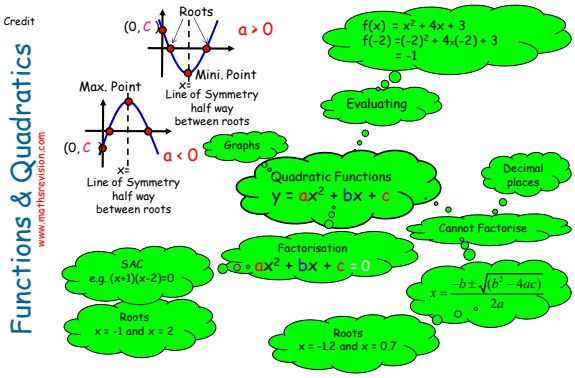
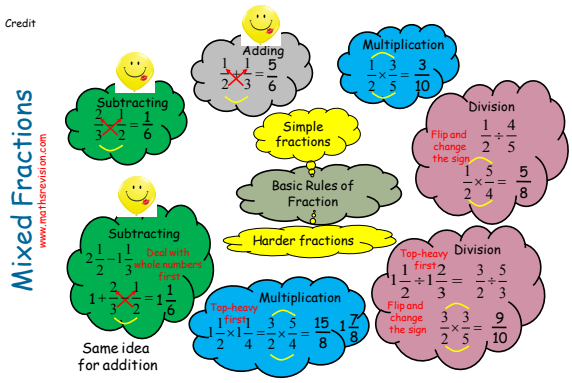
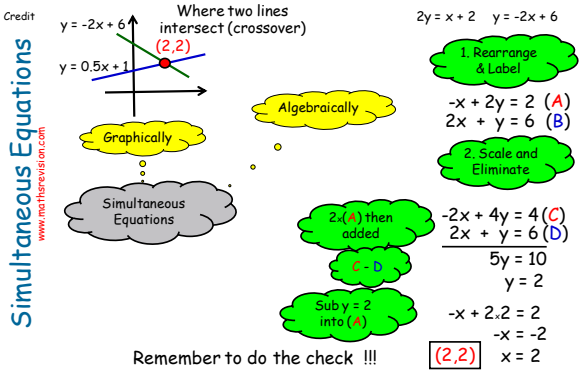
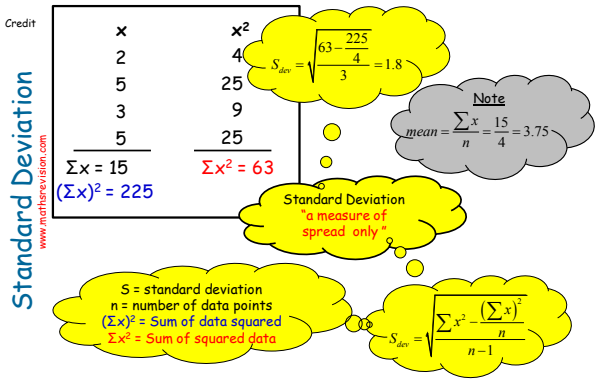
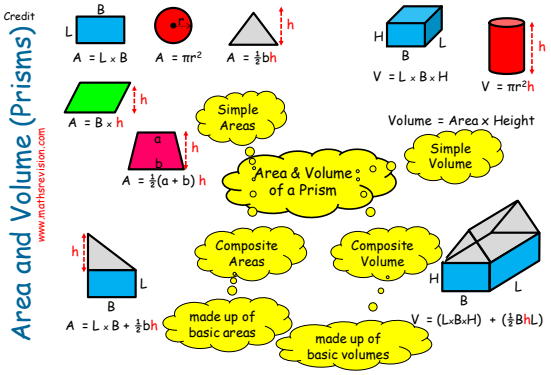

Straight Line Theory
www.mathsrevision.com
Credit
m < 0
m = 0
m = undefined
m > 0
Possible values for gradient
(0,c)
m > 0
Graph of y = mx + c
Note : 2y + 4x = 8 rearrange into correct form y = -2x + 4
Straight Line y = mx + c
Two points needed (x1,y1) and (x2,y2) to calculate gradient
Parallel lines have same gradient
m = gradient
c = y intercept (0,C)

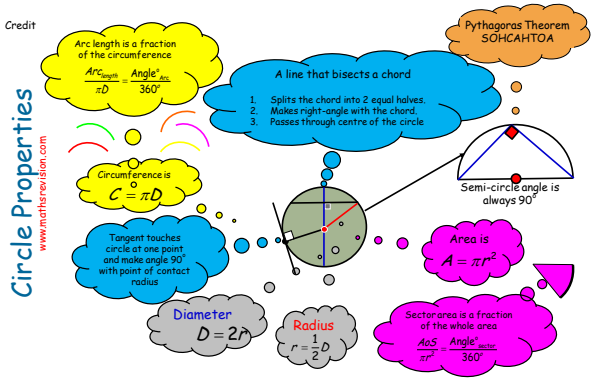

Functions & Quadratics
www.mathsrevision.com
Credit
Roots
(0,C)
a > 0
Max. Point
Mini. Point
Line of Symmetry half way between roots
(0,C)
a < 0
Line of Symmetry half way between roots
f(x) = x² + 4x + 3
f(-2) =(-2)² + 4x(-2) + 3
= -1
Evaluating
Graphs
Quadratic Functions
y = ax² + bx + c
Decimal places
Cannot Factorise
Factorisation
ax² + bx + c = 0
SAC
e.g. (x+1)(x-2)=0
Roots
x = -1 and x = 2
Roots
x = -1.2 and x = 0.7

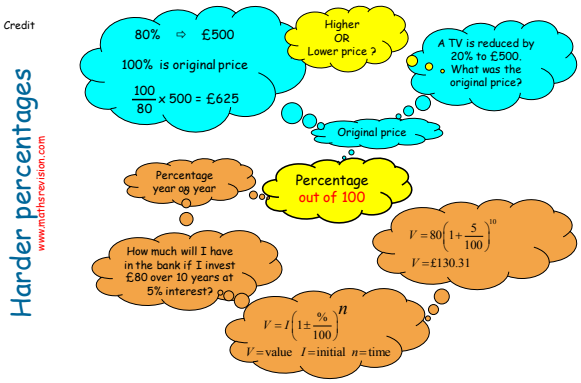

Mixed Fractions
www.mathsrevision.com
Credit
Adding
Multiplication
Subtracting
Simple fractions
Division
Flip and change the sign
Basic Rules of Fraction
Subtracting
Need with whole numbers first
Harder fractions
Top-heavy first
Division
Top-heavy first
Multiplication
Flip and change the sign
Same idea for addition

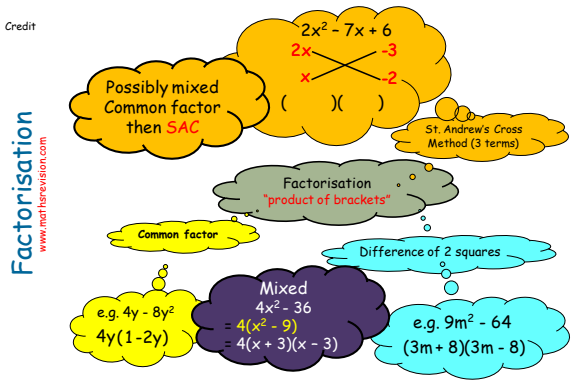

Simultaneous Equations
www.mathsrevision.com
Credit
y = -2x + 6
y = 0.5x + 1
(2,2)
Where two lines intersect (crossover)
Graphically
Algebraically
Simultaneous Equations
2y = x + 2
y = -2x + 6
1. Rearrange & Label
-x + 2y = 2 (A)
2x + y = 6 (B)
2. Scale and Eliminate
2x(A) then added
C - D
Sub y = 2 into (A)
-2x + 4y = 4 (C)
2x + y = 6 (D)
5y = 10
y = 2
-x + 2x2 = 2
-x = -2
x = 2
(2,2)
Remember to do the check !!!


Standard Deviation
www.mathsrevision.com
Credit
x
2
5
3
5
Σx = 15
(Σx)² = 225
x²
4
25
9
25
Σx² = 63
Note
Standard Deviation "a measure of spread only"
S = standard deviation
n = number of data points
(Σx)² = Sum of data squared
Σx² = Sum of squared data


Area and Volume (Prisms)
www.mathsrevision.com
Credit
A = L x B
A = πr²
A = ½bh
V = L x B x H
V = πr²h
A = B x h
Simple Areas
Volume = Area x Height
Simple Volume
A = ½(a + b) h
Area & Volume of a Prism
Composite Areas
Composite Volume
A = L x B + ½bh
made up of basic areas
made up of basic volumes
V = (LxBxH) + (½BhL)


Circle Properties
www.mathsrevision.com
Credit
Arc length is a fraction of the circumference
Pythagoras Theorem SOHCAHTOA
A line that bisects a chord
1. Splits the chord into 2 equal halves.
2. Makes right-angle with the chord.
3. Passes through centre of the circle
Circumference is C = πD
Semi-circle angle is always 90°
Tangent touches circle at one point and make angle 90° with point of contact radius
Area is A = πr²
Diameter D = 2r
Radius r = ½D
Sector area is a fraction of the whole area


Harder percentages
www.mathsrevision.com
Credit
80% ⇨ £500
100% is original price
100/80 x 500 = £625
Higher OR Lower price ?
A TV is reduced by 20% to £500. What was the original price?
Original price
Percentage year ag year
Percentage out of 100
How much will I have in the bank if I invest £80 over 10 years at 5% interest?
V = I(1 ± %/100)^n
V = value I = initial n = time


Factorisation
www.mathsrevision.com
Credit
2x² - 7x + 6
2x
-3
x
-2
( )( )
Possibly mixed Common factor then SAC
St. Andrew's Cross Method (3 terms)
Factorisation "product of brackets"
Common factor
Difference of 2 squares
Mixed
4x² - 36
= 4(x² - 9)
= 4(x + 3)(x - 3)
e.g. 4y - 8y²
4y(1-2y)
e.g. 9m² - 64
(3m + 8)(3m - 8)