S4 Mathematics Credit Course

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Mr. Lafferty | 7/15/2009 | S4 Credit NEED TO KNOW

Algebraic Fractions 1

Addition

$$\frac{3}{x-1}+\frac{x}{x+1}$$

$$\frac{3(x+1)+x(x-1)}{(x-1)(x+1)}$$

$$\frac{3x+3+x^2-x}{(x-1)(x+1)}$$

$$\frac{x^2+2x+3}{(x-1)(x+1)}$$

Subtraction

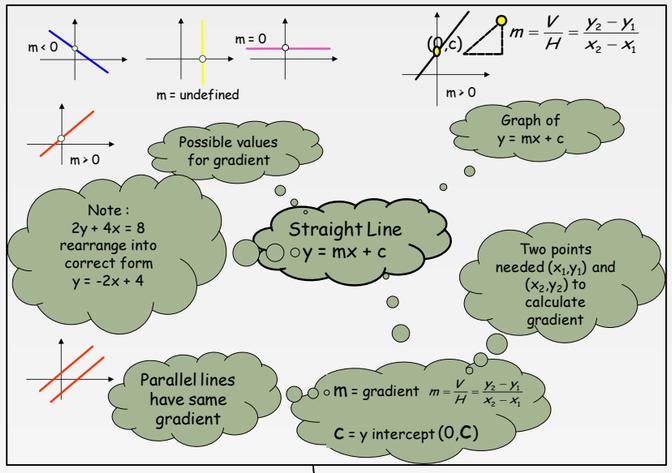
$$\frac{3}{x}-\frac{1}{(x+5)}$$

$$\frac{3(x+5)-x}{x(x+5)}$$

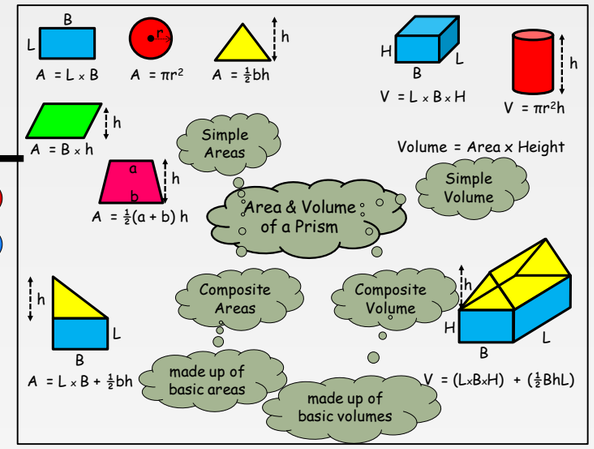
$$\frac{3x+15-x}{x(x+5)}$$

$$\frac{2x+15}{x(x+5)}$$

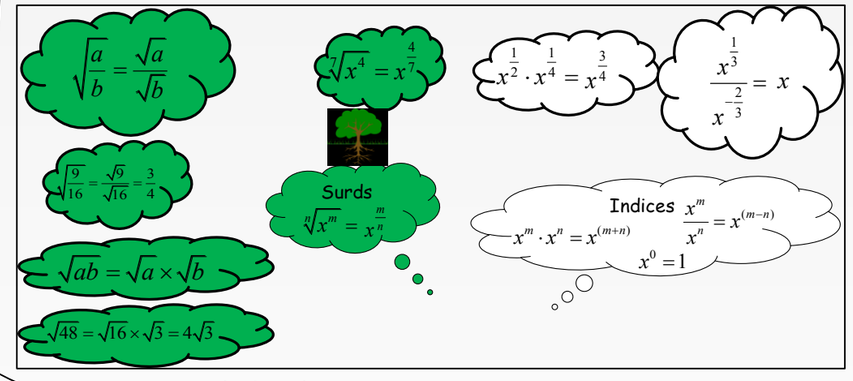
Straight Line 2 1



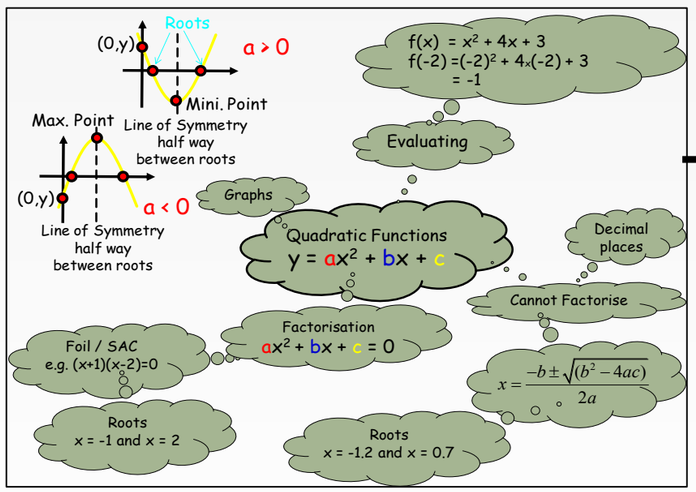
Area & Volumes 1 2



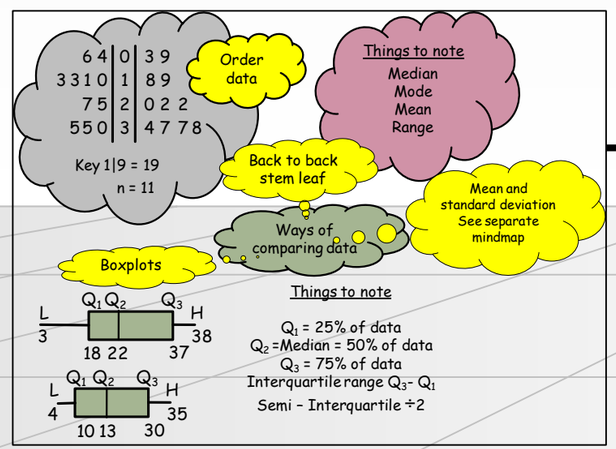
Surds & Indices 1



Quadratics 1



Comparing Data 1



Solving Equations 1

multiply EVERY term to get rid of fractional term.
and
Apply 'Balancing Method'

Multiply EVERY term by 3

$$\frac{x+1}{3}+4=6 \qquad (x+1)+12=18$$

Subtract 13 from each side

$$x+13=18$$

$$x=5$$

Sine Rule / Cosine Rule 1

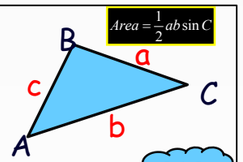
How to determine which rule

Two questions

1. Do you know ALL the lengths.

OR

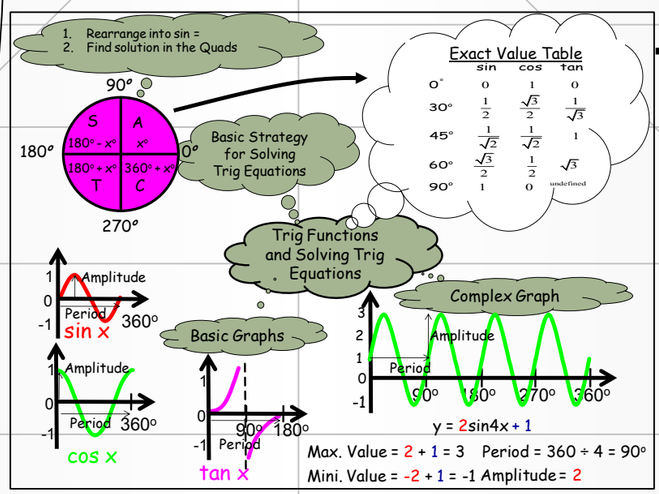
2. Do you know 2 sides and the angle in between.



If YES Cosine Rule $a^2=b^2+c^2-2bc\cos A$

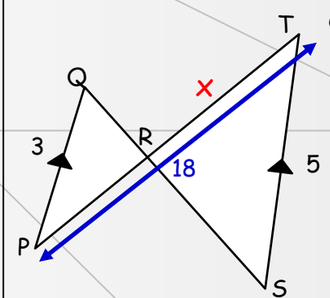
Otherwise use the Sine Rule $\frac{a}{SinA}=\frac{b}{SinB}=\frac{c}{SinC}$

Trig Functions 1



Similarity 1

Find the values of x given that the triangles are similar.



Corresponding sides are in proportion

$$\frac{PQ}{ST}=\frac{PR}{PT}$$

$$\frac{3}{5}=\frac{18-x}{x}$$

$$3x=5(18-x)$$

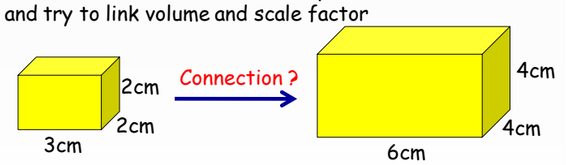
$$3x=90-5x$$

$$8x=90$$

$$x=11.25$$

Another example of similar volumes ?

Work out the volume of each shape and try to link volume and scale factor



$V = 3 \times 2 \times 2 = 12cm^3$

$V = 6 \times 4 \times 4 = 96cm^3$

Scale factor = ESF = $\frac{6}{3}=2$

Large Volume = $(2)^3 \times 12 = 8 \times 12 = 96cm^3$