Subject: Maths	Term: HT1 June Part 1	Year Group: 11 Higher

Statistics Statistical Measures

1	Mean for grouped data AKA 'estimated mean'.	Because data is grouped we find a mid-point which we then treat as our data. Calculate an estimate of the mean length of the fish. 2590 ÷ 100 25.9 cm
2	Median for grouped data	Frequency total ÷ 2 then count down the frequency total until we get to the number. $\frac{80}{2}$ = 40th value $30 + \frac{19}{31} \times 10$ 35.806 cm (3)
3	IQR : UQ – LQ (Interquartile range = upper quartile – lower quartie)	Upper Quartile (UQ) = 75% Lower Quartile (LQ) = 25% Eg. Find the IQR of 1, 2, 3, 4, 5, 6, 7 IQR = 6 – 2 = 4

length, L, cm	Frequency	Midpoint	fx
0 < L ≤ 10	21	5	105
10 < L ≤ 20	11	15	165
20 < L ≤ 30	31	25	775
30 < L ≤ 40	12	35	420
40 < L ≤ 50	25	45	1125
	+ 100		+ 2590

Height (x cm)	Frequency
0 < x ≤ 10	3
10 < x ≤ 20	7
20 < x ≤ 30	12
30 < x ≤ 40	31
40 < x ≤ 50	27
	80

Number Indices & Standard Form

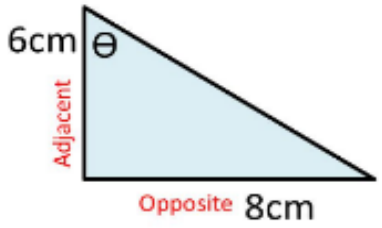
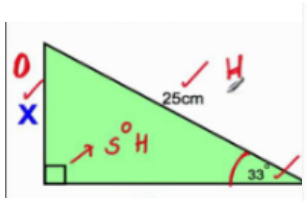
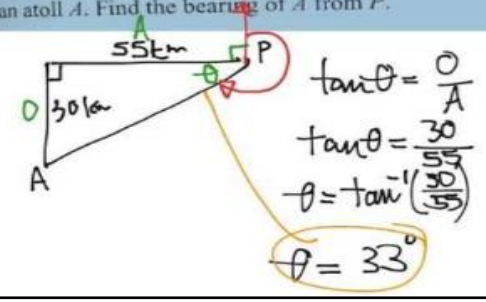
1	Negative powers (Indices)	$x^{-2} = \frac{1}{x^2}$ $x^{-3} = \frac{1}{x^3}$
2	Fractional powers (Indices) $64^{\frac{2}{3}}$	$= \left((64)^{\frac{1}{3}}\right)^2$ $= \left(\sqrt[3]{64}\right)^2$ $= 4^2$ 16
3	Estimate powers & roots Estimate: $\sqrt{28}$	$25 < 28 < 36$ ↓ $\sqrt{25} < \sqrt{28} < \sqrt{36}$ ↓ $5 < \sqrt{28} < 6$ ✓

Number Indices & Standard Form

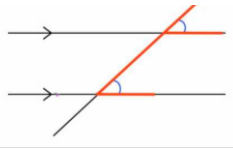
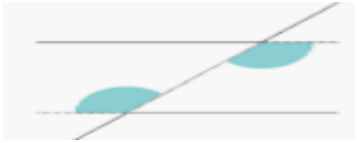
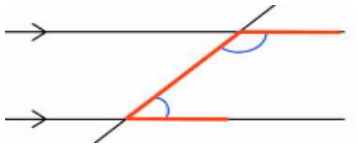
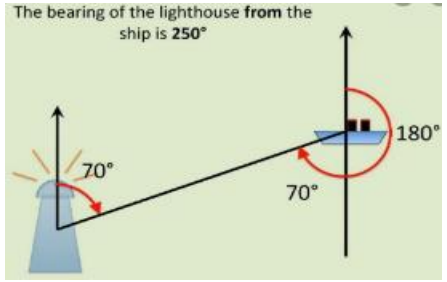
4	Ordinary form to standard form	5800000 $= 5.8 \times 10^6$
5	Multiplying and dividing standard form	$(3 \times 10^5) \div (2 \times 10^3)$ 1.5×10^2 $(4.6 \times 10^8) \times (3.2 \times 10^3)$ $= (4.6 \times 3.2) \times (10^8 \times 10^3)$ $= 14.72 \times 10^{11}$ Our answer isn't in standard form $= 1.472 \times 10^{12}$
6	Product rule for counting Eg. Katie has 52 different playing cards. She gives one card to Grace, one to Bill and one to Jenny. In how many ways can she do this? 52 x 51 x 50 = 132600	

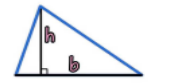
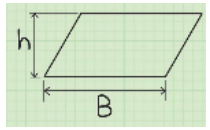
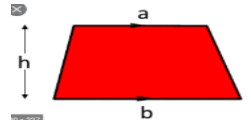
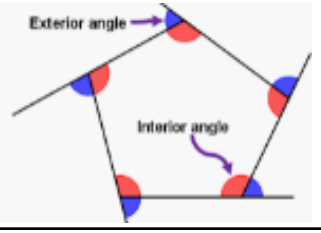
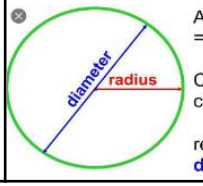
Subject: Maths	Term: HT1 June Part 2	Year Group: 11 Higher

Geometry & Measure – Trigonometry 1

1	Find the missing angle	SOH CAH TOA This question will use Tan  $\tan\theta = \frac{O}{A}$ $\tan\theta = \frac{8}{6}$ $\tan\theta = 1.25$ What angle would give us th answer? $\tan^{-1}1.25 = \theta$ 51.3° (1dp) $= \theta$
2	Find the missing side	 $\sin\theta = \frac{O}{H}$ $\sin 33 = \frac{x}{25}$ ×25 $25\sin 33 = x$ $x = 13.62\text{cm}$
3	Trig with bearings	A ship sails from a port P. It travels 55 km west then 30 km south to an atoll A. Find the bearing of A from P.  $\tan\theta = \frac{O}{A}$ $\tan\theta = \frac{30}{55}$ $\theta = \tan^{-1}\left(\frac{30}{55}\right)$ $\theta = 33^{\circ}$

Geometry & Measure - Area & Angles

1	Corresponding angles are equal	
2	Alternate angles are equal	
3	Interior angles add to 180°	
4	Bearings	

5	Areas(& perimeter): Triangle  $\text{Area} = \frac{1}{2} \times b \times h = \frac{bh}{2}$ Parallelogram $A = Bh$  Trapezium  $\text{Area} = \frac{1}{2}(a+b) \times h$
6	Exterior / Interior angles of polygons: Sum of the interior angles =180(n-2) Exterior angle of a regular polygon = 360/number of sides	
7	Circle: area & circumference	 Area of a circle = π x radius² Circumference of a circle = π x diameter remember that the diameter = 2 x radius

4	Exact trig values	

	0°	30°	45°	60°	90°
sin	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
tan	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	—

Key Vocabulary

1	Mean, median, mode	Forms of averages – finding a middle value in a set of data
2	Trigonometry 1	Finding missing angles/sides inside right angled triangles

Beckfoot

Subject: Maths	Term: HT2 September Part 1	Year Group: 11 Higher

enjoy learn succeed

Algebra Iteration / Linear Graphs

1	Growth/decay & compound interest	Emily invests £8000 in the bank for 4 years. It earns compound interest of 3% per year. ×1.03 Calculate the total amount of money that Emily has in the bank after 4 years. initial × multiplier^time 8000 × 1.03^4 8000 × 1.03^4 9004.07048 £9004.07
2	Approx. solution using iteration: using the previous answer to find the next answer.	Starting with $x_0 = 0$, use the iteration formula $x_{n+1} = \frac{1}{3} - \frac{x_n^2}{3}$ three times to find x_1, x_2 and x_3 $x_1 = \frac{1}{3} - \frac{0^2}{3} =$ X1=0 X2=1/3 X3= 8/27
3	Linear graphs	**Equation**: Y = 3x + 5 **Table**: X: -1, 0, 1, 2 Y: 2, 5, 8, 11 **Graph:** When the function is linear, then there is a common difference between each of the y values
4	Solve where 2 lines intersect Solution (3,1)	y = 2 y = x-1
5	Gradient of a straight line	Gradient = Rise / Step = 6/3 = 2 Rise = 6 Step = 3
6	Midpoint of a straight line	Midpoint = $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$ (-2, 1), m, (5, 4) $m = \left(\frac{-2+5}{2}, \frac{1+4}{2}\right) = \left(\frac{3}{2}, \frac{5}{2}\right) = (1.5, 2.5)$
7	Linear equation from 2 points	(-2,-4) ∧ (3,6) $m = \frac{y_2-y_1}{x_2-x_1} = \frac{6-(-4)}{3-2} = \frac{10}{1}$ $y - y_1 = m(x - x_1)$ $y-(-4) = 10(x-2)$ $y+4 = 10x - 20$ $y = 10x - 24$
8	Equation of parallel line through a given point	Eg. A straight line has the equation y = -2x-3. Find the equation of the parallel line passing through the point (1,3) $y - y_1 = m(x - x_1)$ $y - 3 = -2(x - 1)$ $y - 3 = -2x + 2$ $+3 \quad +3$ $y = -2x + 5$
9	Use y = mx + c to identify perpendicular lines	$y = 2x$ $y = -\frac{1}{2}x$ Gradients that are negative reciprocals of each other. $m_1 \times m_2 = -1$

Key Vocabulary

1	Surface area sphere	s/a = $4\pi r^2$
2	Surface area cone	$Full\ surface\ area = \pi r l + \pi r^2$ $Curved\ surface\ area\ only = \pi r l$ REMEMBER: sometimes you may need to calculate the slant of the cone (l) using Pythagoras.
3	Volume Pyramid	$\frac{1}{3}\ x\ (base\ area) x\ height$

Beckfoot

Subject: Maths	Term: HT2 September Part 2	Year Group: 11 Higher

enjoy learn succeed

Number Surds / Percentages

1	Rationalise: x top & bottom by the surd	$\frac{3}{\sqrt{5}} = \frac{3}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}}$ $(\sqrt{5} \times \sqrt{5} = \sqrt{25} = 5)$ $= \frac{3\sqrt{5}}{5}$
2	Expand brackets	$2(5+\sqrt{3})$ $10+2\sqrt{3}$
3	Geometric sequences with surds $\sqrt{2}, 2, 2\sqrt{2}, 4, ?$	$n=1 \rightarrow (\sqrt{2})^1 = \sqrt{2}$ ✓ $n=2 \rightarrow (\sqrt{2})^2 = \sqrt{2} \times \sqrt{2} = 2$ ✓ $n=3 \rightarrow (\sqrt{2})^3 = \sqrt{2} \times \sqrt{2} \times \sqrt{2} = 2\sqrt{2}$ ✓ $n=4 \rightarrow (\sqrt{2})^4 = \sqrt{2} \times \sqrt{2} \times \sqrt{2} \times \sqrt{2} = 4$ ✓ $n=5 \rightarrow (\sqrt{2})^5 = \sqrt{2} \times \sqrt{2} \times \sqrt{2} \times \sqrt{2} \times \sqrt{2} = 4\sqrt{2}$ ✓
4	% increase / decrease	$\text{Percent Increase} = \frac{[\text{new value}] - [\text{old value}]}{[\text{old value}]}$ $\text{Percent Decrease} = \frac{[\text{new value}] - [\text{old value}]}{[\text{old value}]}$
5	Multiplier in successive percentages	**Successive Percentage Changes** An amount is increased by 20% then increased again by 30% Find the overall percentage change. $\times 1.2 \rightarrow \times 1.3 \rightarrow \times 1.56$ Equivalent to a 56% increase overall.

Ratio & Proportion

1	Set up & solve growth/ decay problems	W is **directly** proportional to F and when $W = 24$, $F = 6$. Find the value of W when $F = 10$. $W = kF$ → Substitute $W = 24, F = 6$ → $24 = 6k$ → $4 = k$ → $W = 4F$ $W = 4F$ → When $F = 10$, → $W = 4 \times 10$ → $W = 40$
2	Direct and Indirect Proportion graphs	Direct Proportion $y \propto x$ $y = kx$ for a constant k Inverse Proportion $y \propto \frac{1}{x}$ $y = \frac{k}{x}$ for a constant k
3	Fraction - ratio	In a class there are 5 boys and 8 girls. Express this as a ratio and fraction. boys girls 5 : 8 $\frac{5}{13}$ are boys $\frac{8}{13}$ are girls

Geometry Area & Volume

1	Convert area units	Km^2 (x 1000²) m^2 (x 100²) cm^2 (x 10²) mm^2 (÷ 1000² / ÷ 100² / ÷ 10²) $5km^2 = ?\ m^2$ Need to x 1000² $5 \times 1000 \times 1000 = 5\,000\,000\ m^2$ ✓
2	Convert volume units	Km^3 (x 1000³) m^3 (x 100³) cm^3 (x 10³) mm^3 (÷ 1000³ / ÷ 100³ / ÷ 10³) $1200cm^2 = ?\ m^2$ Need to ÷ 100² $1200 \div 100 \div 100 = 0.12\ m^2$ ✓ $3m^3 = ?\ cm^3$ Need to x 100³ $3 \times 100 \times 100 \times 100 = 3\,000\,000\ cm^3$ ✓
3	Surface area of prisms	Find the area of all the faces & add them up!
4	Frustum volume or surface area	Frustum of a cone Frustum of a pyramid

Beckfoot

Subject: Maths	Term: HT3 November – Part 1	Year Group: 11 Higher

enjoy learn succeed

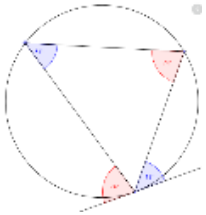
Geometry Circles Triangles Trig

1 Arc length & sector area

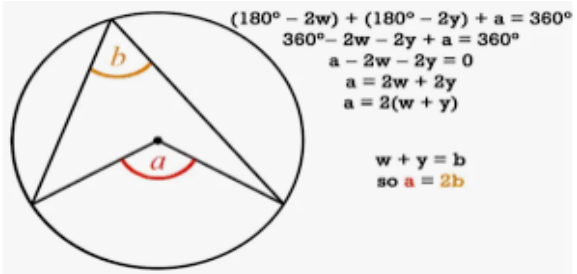
$$\text{arc length} = \frac{\theta}{360°} \times 2\pi r$$

$$\text{area of sector} = \frac{\theta}{360°} \times \pi r^2$$

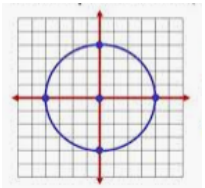
2 Alternate segment theorem



3 Prove circle theorems



4 Equation of a circle



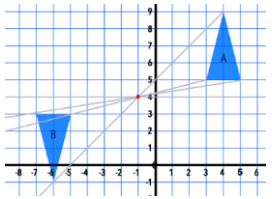
$x^2 + y^2 = r^2$

r is the radius

$x^2 + y^2 = 16$

radius is 4 units

5 Enlarge by a negative SF – This flips the shape. Eg SF -1 about (-1,4)



6 Prove it's a right angle triangle

A triangle has the sides 3cm, 4cm and 6cm. Is this a right angle triangle?

$a^2 + b^2 = c^2$

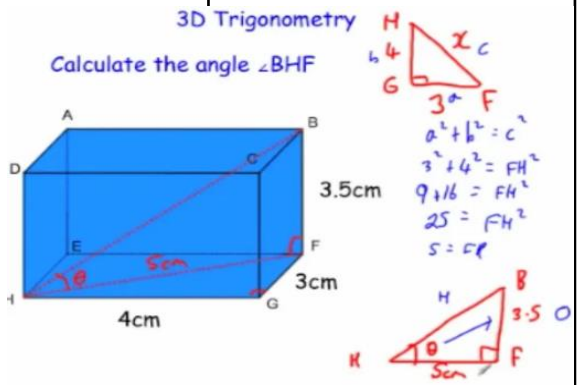
$3^2 + 4^2 = 6^2$

9 + 16 = 36

25 ≠36 (they are not equal)

It is not a right angle triangle.

7 3D Trig



Key Vocabulary

1 Experimental Vs. Theoretical probability

Experimental probability is the result of an experiment or simulation after a large number of times.	Theoretical probability is what is expected to happen based on the possible outcomes, assuming equally likely events.

Number Fractions Decimals

1 + - x ÷

$= \frac{9 \times 1}{7 \times 5} = \frac{9}{35}$

$1\frac{2}{7} \div 5 = \frac{9}{7} \div \frac{5}{1} = \frac{9}{7} \times \frac{1}{5}$

2 Recurring decimal to fraction

$x = 0.5454545454\ldots$

$100x = 54.5454545454\ldots$

$99x = 54$

$99x = 54$

$x = \frac{54}{99} = \frac{6}{11}$

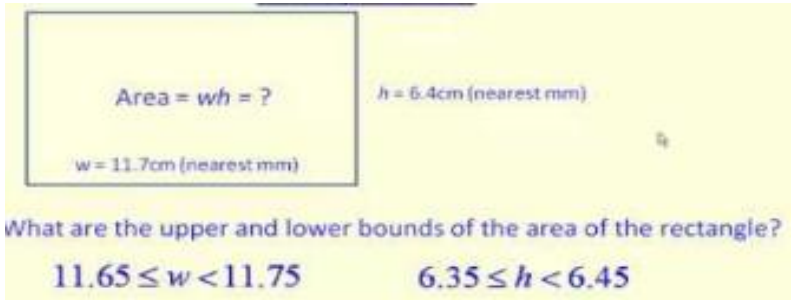
4 Reciprocal

$0.5 = \frac{1}{2}$

$\frac{1}{2} \quad \frac{2}{1} = 2$

$\frac{4}{3}$ $\frac{3}{4}$

5 Upper lower bounds



Lb area = 11.65 x 6.35 Ub area = 11.75 x 6.45

Beckfoot

Subject: Maths	Term: HT3 November – Part 2	Year Group: 11 Higher

enjoy learn succeed

Probability

1	Estimate outcomes	

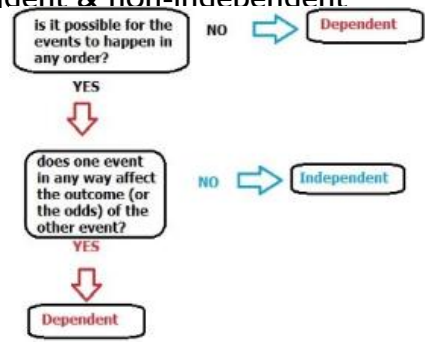
Colour	Probability
Blue	$\frac{1}{2}$
Yellow	$\frac{1}{4}$
Red	$\frac{1}{8}$
Green	$\frac{1}{8}$

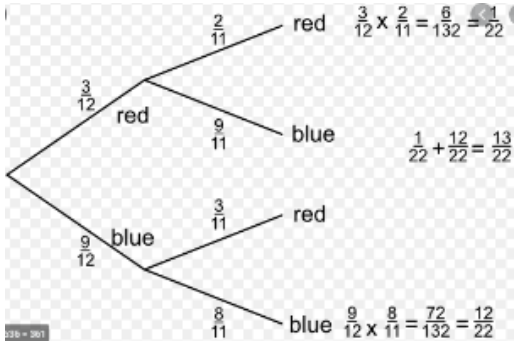
We calculate an estimate using:
probability × number of tries
In 20 spins, we would expect:
Yellow → $\frac{1}{4} \times 20 = 5$ **5 yellows**

2	Relative Frequency	

Item	Frequency	Relative frequency
1	4	4/20 (or 20%)
2	5	5/20 (or 25%)
3	5	5/20 (or 25%)
4	2	2/20 (or 10%)
5	4	4/20 (or 20%)
Total	20	

3	Independent & non-independent events	



4	Successive independent events	What is the probability of 2 heads on 2 successive throws P(h) x p(h) = 0.5 x 0.5 = 0.25
5	Successive dependent events	
5	And Or Rule	And: multiply x Or: add +
6	Conditional probability	Probability which depends on a previos event. Eg if I choose a card but don't replace it and then choose another, the probability will change.

Algebra Inequalities & Equations

1. Solve inequalities

$$-3 \leq 2x - 1 \leq 5$$
$$+1 \quad +1 \quad +1$$
$$-2 \leq 2x \leq 6$$
$$\frac{-2}{2} \leq \frac{2x}{2} \leq \frac{6}{2}$$
$$-1 \leq x \leq 3$$

2. Find all the integer solutions which satisfy this inequality:

$$-1 \leq x \leq 3$$

-1. 0, 1, 2 , 3

3. Solve with unknown both sides

$$4m - 3 < 2m + 6$$
$$-2m \quad -2m$$
$$2m - 3 < +6$$
$$+3 \quad +3$$
$$2m < 9$$
$$\frac{2m}{2} < \frac{9}{2}$$
$$m < \frac{9}{2}$$

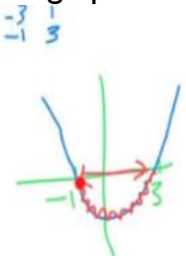
4. Quadratic inequalities & graph

Solve $x^2 - 2x - 3 < 0$

$(x-3)(x+1) < 0$

$x = 3 \quad x = -1$

$-1 < x < 3$



5. Solve fractional equations

Solve $\frac{5}{x-2} = \frac{3}{x}$

$$\frac{5}{x-2} = \frac{3}{x}$$
$$5x = (x-2)(3)$$
$$5x = 3x - 6$$
$$2x = -6$$
$$x = -3$$

6. Inverse functions
HINT :Change the subject of the formula

$x = (y-6)^2 - 4$

$+4 \quad +4$

$\sqrt{x+4} = \sqrt{(y-6)^2}$

$\sqrt{x+4} = y - 6$

$+6 \quad +6$

$\sqrt{x+4} + 6 = y$

$f^{-1}(x) = \sqrt{x+4} + 6$

7. Composite Functions

$fg(x) = 2(x-2) + 3$
$= 2x - 4 + 3$
$= 2x - 1$

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

Beckfoot

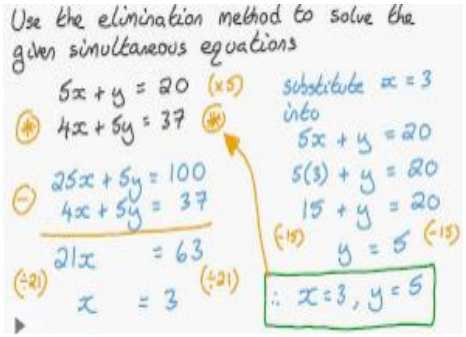
Subject: Maths	Term: HT4 January – Part 1	Year Group: 11 Higher

enjoy learn succeed

Algebra Simultaneous Equations, Quadratics Equations & Formulae

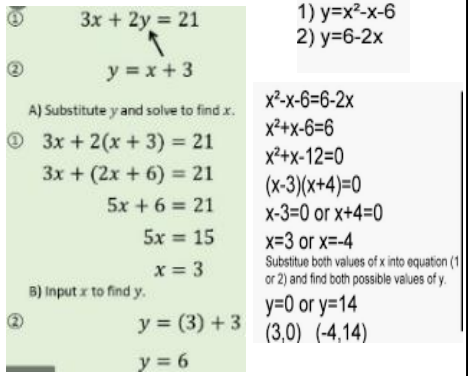
1 Solve simultaneous equations

Via elimination



2 Solve simultaneous equations

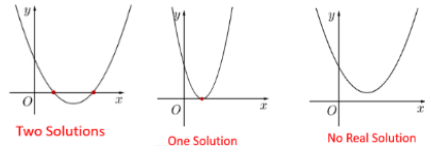
Via substitution



3 Solve quadratics via graphing

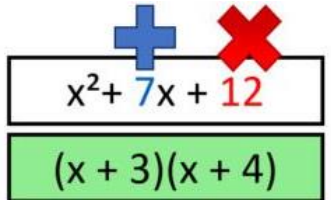
The x-intercepts of a graph are the solutions of the equation.

A quadratic equation can have one of three types of solutions:



4 Factorise & solve

2 numbers that X to give 12 and + to give 7



5 Factorise & solve a difference of 2 squares

$$a^2 - b^2 = (a+b)(a-b)$$

$$x^2 - 9 = (x+3)(x-3)$$

x = -3 x = 3

6 Factorise & solve complex quadratics

$3x^2 + 11x + 10$

3 x 10 = 30 Factors of 30 that + or – to make 11 are: 5 + 6 = 11

$3x^2 + 6x + 5x + 10$

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

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

so x = -5/3 or x = -2

7 Solve via quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Eg $2x^2 + 11x + 6 = 0$ ⇨ a=2 b=11 c=6

$$x = \frac{-11 \pm \sqrt{11^2 - 4 \times 2 \times 6}}{2 \times 2} \qquad x = \frac{-11 \pm \sqrt{73}}{4}$$

x = -0.614 or -4.886 (3dp)

8 Complete the square

Turning point (9, -1)

$x^2 - 18x + 80 = 0$

$(x-9)^2 - (-9)^2 + 80 = 0$

$(x-9)^2 - 81 + 80 = 0$

$(x-9)^2 - 1 = 0$

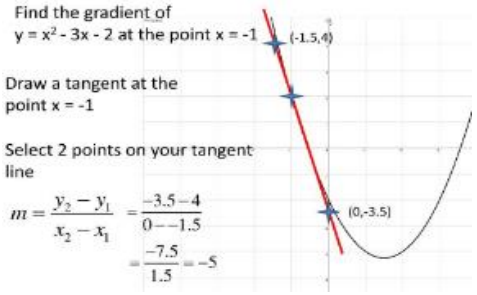
$(x-9)^2 = 1$

$x - 9 = \pm\sqrt{1}$

$x = -1 + 9$ $x = 8$

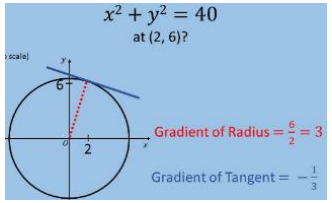
$x = +1 + 9$ $x = 10$

9 Gradient of tangent touching curve



10. Tangent to circle equation

To find equation we use y=mx+c



M = $-\frac{1}{3}$ & sub (2,6)

$$6 = -\frac{1}{3}(2) + c$$

$6 + \frac{2}{3} = c$ c = 6.67

$$y = \frac{1}{3}x + 6.67$$

11. Rearrange where a variable appears more than once

$2(2p + m) = 3 - 5m$

$4p + 2m = 3 - 5m$

$4p + 2m + 5m = 3$

$2m + 5m = 3 - 4p$

$7m = 3 - 4p$

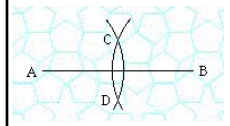
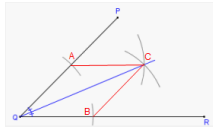
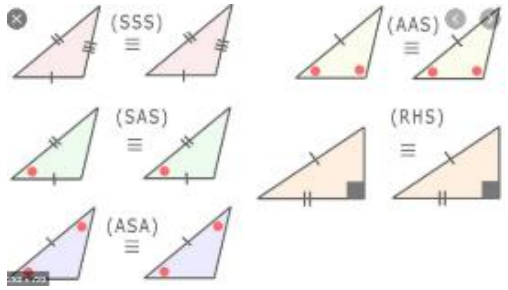
$m = \frac{3 - 4p}{7}$

Beckfoot

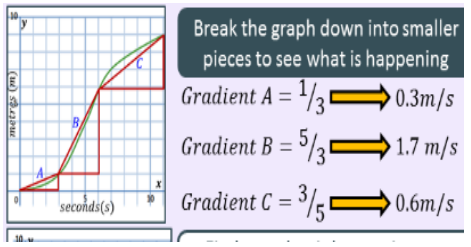
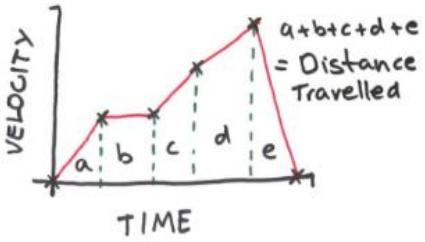
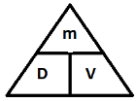
Subject: Maths	Term: HT4 January – Part 2	Year Group: 11 Higher

enjoy learn succeed

Geometry Construction

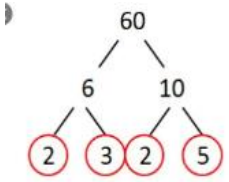
1	Perpendicular 	1) Open the compass more than half of the distance between A and B, and scribe arcs of the same radius centered at A and B. 2) Call the two points where these two arcs meet C and D. Draw the line between C and D. 3) CD is the **perpendicular bisector** of the line segment AB.
2	Angle Bisection 	1) Place compass point on the vertex of the **angle** (point B). 2) Stretch the compass to any length that will stay ON the **angle**. 3) Swing an arc so the pencil crosses both sides (rays) of the given **angle**. ... 4) Place the compass point on one of these new intersection points on the sides of the **angle**.
3	Prove congruent Triangles	Know and understand the different tests for congruency. 

Ratio Proportion Rates of Change Real Life Graphs

1	Calculate fastest average speed.	
2	Velocity time graphs	
3	Density	$\text{density} = \frac{\text{mass}}{\text{volume}}$ 

Number

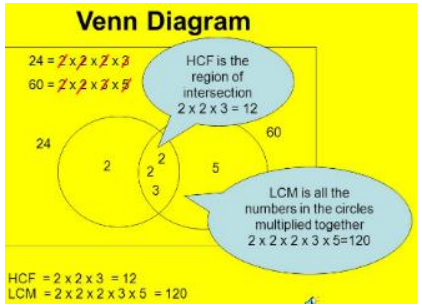
1. Prime factorisation



Either way, the result is:

$2 \times 2 \times 3 \times 5$ or $2^2 \times 3 \times 5$

2. Using Venn to find HCF/LCM



Key Vocabulary

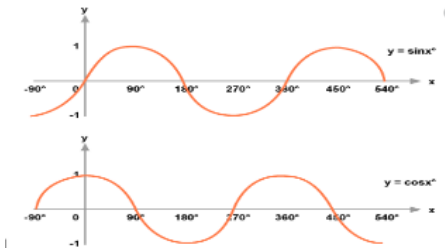
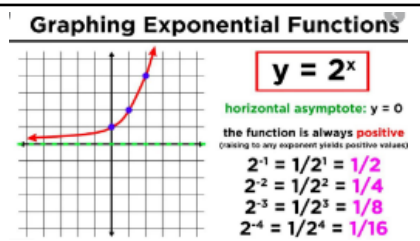
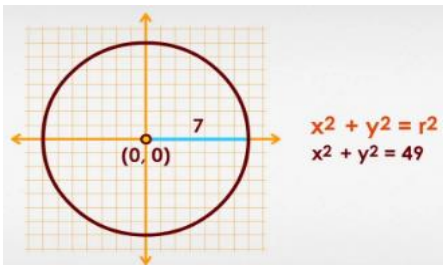
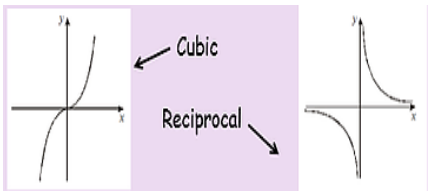
1	Velocity	Is speed with direction.
2	Tangent	A straight line that touches a circle.
3	Roots or solutions	When we draw a quadratic equation, where the curve cuts through the x-axis are called the roots or solutions.
4	Gradient	Rate of change, so it could be the rate of water flow over time, or distance travelled over time.
5	Bisect	To mathematically accurately cut something in half e.g., an angle,
6	Prime factorisation	To break a number down into the primes we can multiply to make the original number.
7	Co-efficient	This is the number in front for example the co-efficient of this term $3x^2$ is 3.

Beckfoot

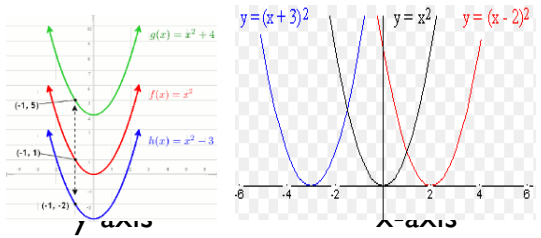
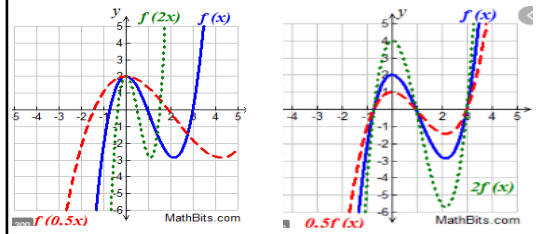
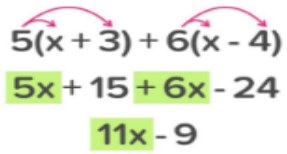
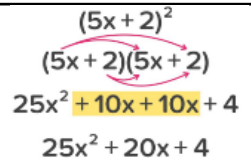
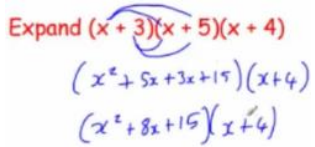
Subject: Maths	Term: HT5 March – Part 1	Year Group: 11 Higher

enjoy learn succeed

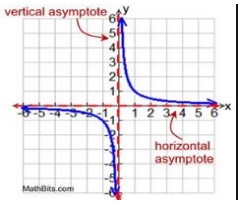
Algebra Cubic Circular, Exponential Functions

1	Sketch Sinx Cosx	
2	Sketch exponential graphs	
3	Graphs equations of circles	
4	Recognise cubic & reciprocal graphs	

Transforming Functions & expanding brackets

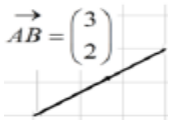
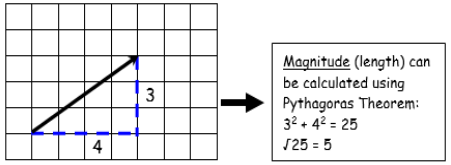
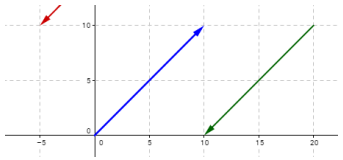
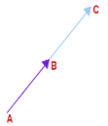
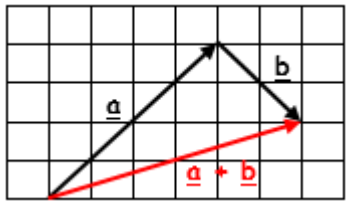
5	Transforming graphs	
6	y=f(x/a) (y)/a=f(x)	
	Single brackets	
	Double brackets	
	Triple brackets	

Key Vocabulary

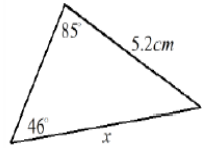
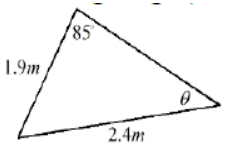
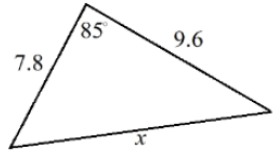
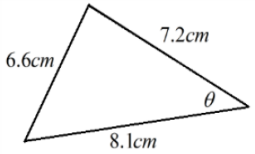
1	Vectors	A quantity having direction as well as magnitude, in other words, size with direction!
2	Sine Rule For non-right angled triangles	Use with **non right angle triangles**. Use when the question involves **2 sides and 2 angles**. For missing side: $\frac{a}{\sin A} = \frac{b}{\sin B}$ For missing angle: $\frac{\sin A}{a} = \frac{\sin B}{b}$
3	Cosine Rule For non-right angled triangles	Use with **non right angle triangles**. Use when the question involves **3 sides and 1 angle**. For missing side: $a^2 = b^2 + c^2 - 2bc\cos A$ For missing angle: $\cos A = \frac{b^2+c^2-a^2}{2bc}$
4	Exponential	Rapid change: exponential growth has growth with a power resulting in greater growth year on year, exponential decay is decay with a power resulting in greater decay year on year.
5	Asymptote	A curve/line never reaches zero (for $y = \frac{1}{x}$) instead it tends towards infinity. 

Subject: Maths	Term: HT5 March – Part 2	Year Group: 11 Higher

Geometry Vectors

1	Column Vector	In a column vector, the **top** number moves **left (-) or right (+)** and the **bottom** number moves **up (+) or down (-) Eg.** $\begin{pmatrix}2\\3\end{pmatrix}$ means '2 right, 3 up'
2	Vector 	A **vector** is a quantity represented by an arrow with both **direction** and **magnitude**. $\overrightarrow{AB} = -\overrightarrow{BA}$
3	Magnitude	Magnitude is defined as the **length** of a vector. 
4	Parallel Vectors 	**Parallel** vectors are **multiples** of each other. Eg. 2**a**+**b** and 4**a**+2**b** are parallel as they are multiple of each other.
5	Collinear Vectors 	**Collinear** vectors are vectors that are on the **same line**. To show that two vectors are **collinear**, show that one vector is a **multiple** of the other (parallel) **AND** that both vectors **share a point**.
6	Resultant Vector 	The **resultant** vector is the vector that results from **adding** two or more vectors together. The resultant can also be shown by **lining up** the **head** of one vector with the **tail** of the other. if **a** = $\begin{pmatrix}4\\4\end{pmatrix}$ and **b** = $\begin{pmatrix}2\\-2\end{pmatrix}$ then **a** + **b** = $\begin{pmatrix}4\\4\end{pmatrix} + \begin{pmatrix}2\\-2\end{pmatrix} = \begin{pmatrix}6\\2\end{pmatrix}$

Geometry -Trigonometry 2

1	Sine Rule – Missing Side 	$\frac{x}{\sin 85} = \frac{5.2}{\sin 46}$ $x = \frac{5.2 \times \sin 85}{\sin 46} = 3.75cm$
2	Sine Rule – Missing Angle 	$\frac{\sin\theta}{1.9} = \frac{\sin 85}{2.4}$ $\sin\theta = \frac{1.9\times\sin 85}{2.4} = 0.789$
3	Cosine Rule – Missing Side 	$x^2 = 9.6^2 + 7.8^2 - (2 \times 9.6 \times 7.8 \times \cos 85)$ $x = 11.8$
4	Cosine Rule – Missing Angle 	$\cos\theta = \frac{7.2^2 + 8.1^2 - 6.6^2}{2 \times 7.2 \times 8.1}$ $\theta = 50.7°$

Well done for getting this far & good luck with your GCSE!