Knowledge Organiser

Lent Term Set 2   Year 11

| Topic	Self-Assessment	Independent Learning and homework tasks	
		MyMaths	**CorbettMaths.com**
Use co-ordinates in 3D		Algebra, Coordinates, 3D coordinates	Video 86
Use Pythagoras and Trigonometry to solve in 3D		Shape, Pythagoras, Pythagoras in 3D	Video 259
Recognise and use the equation of a circle with centre at the origin, equation of a tangent to a circle		Algebra, Graphs, Equation of a circle / Tangents and chords	Video 372
Express positions and lines in terms of vectors.		Shape, Vectors, Vectors 1	Video 353
Solve geometric problems using vectors.		Shape, Vectors, Vectors 2	Video 353
Be able to calculate sine, cosine and tangent of angles greater than 90°		Shape, Trigonometry, Sine and Cosine Graphs / Tan Graphs	Video 338 - 340
Be able to draw graphs sine, cosine and tangent.		Shape, Trigonometry, Sine and Cosine Graphs / Tan Graphs	Video 338 - 340
Know the exact values of $\sin\theta$ and $\cos\theta$ and $\tan\theta$ for θ = 0°, 30°, 45° , 60° and 90°		Shape, Trigonometry, Sine and Cosine Graphs / Tan Graphs	Video 338 - 340
Use the sine and cosine rules to find unknown lengths and angles of any triangle		Shape, Trigonometry, Sine Rule / Cosine Rule missing sides / angles	Video 333 - 336
Find the area of any triangle		Shape, Trigonometry, Trig Area of a Triangle	Video 337
Be able to use of $f(x)$, $fg(x)$ and $f^{-1}(x)$ notation		Algebra, Functions, Functions 1	
Understanding 'inverse function' and 'composite function'		Algebra, Functions, Functions 2	Video 369 - 370
Find approximate solutions to equations numerically using iteration		Algebra, Equations – approx. solutions, Iterations	Video 373
Be able to use function notation. Sketch graphs of y=af(x), y =f(ax), y=f(x)+a, y=f(x+a) given the graph of y=f(x) (7/8).		Algebra, Graphs, Transforming Graphs 1 & 2	Video 323 - 4
Simplify surds and rationalise their denominator		Number, Powers & Roots, Surds 1 & 2	Video 305 - 8

Lent Term Knowledge

Sine and Cosine Rules

Sine Rule	Cosine Rule
Two sides and a NOT included angle	Two sides and the included angle
$\dfrac{SinA}{a} = \dfrac{sinB}{b} = \dfrac{sinC}{c}$	$a^2 = b^2 + c^2 - 2bc\cos A$
Two angles and any side	All three sides only
$\dfrac{a}{sinA} = \dfrac{b}{sinB} = \dfrac{c}{sinC}$	$\cos A = \dfrac{b^2 + c^2 - a^2}{2bc}$

Trigonometry Graphs

$y = \sin x$

$y = \cos x$

$y = \tan x$

Trigonometry Exact Values

	$0°$	$30°$	$45°$	$60°$	$90°$
sin	0	$\dfrac{1}{2}$	$\dfrac{1}{\sqrt{2}}$	$\dfrac{\sqrt{3}}{2}$	1
cos	1	$\dfrac{\sqrt{3}}{2}$	$\dfrac{1}{\sqrt{2}}$	$\dfrac{1}{2}$	0
tan	0	$\dfrac{1}{\sqrt{3}}$	1	$\sqrt{3}$	$-$
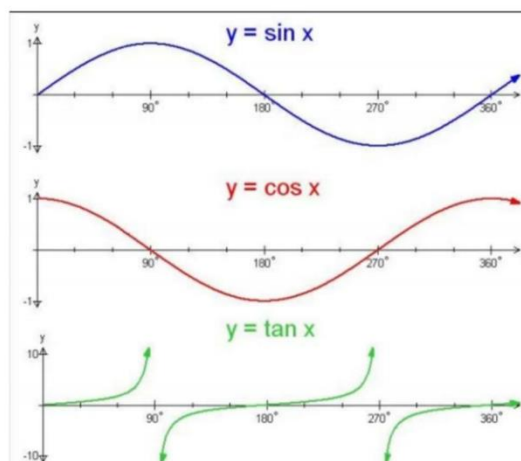
Transformations of Function $f(x)$

Horizontal	right	$f(x - h)$ moves the function h units right.
	left	$f(x + h)$ moves the function h units left.
Vertical	up	$f(x) + k$ moves the function k units up.
	down	$f(x) - k$ moves the function k units down.
Reflection	x-axis	$-f(x)$ reflects the function over the x-axis.
	y-axis	$f(-x)$ reflects the function over the y-axis.
Vertical	stretch	$a \cdot f(x)$, where $a > 1$, stretches the curve vertically by a factor of a.
	shrink	$a \cdot f(x)$, where $0 < a < 1$, shrinks the curve vertically by a factor of a.
Horizontal	stretch	$f(bx)$, where $0 < b < 1$, stretches the curve horizontally by a factor of b.
	shrink	$f(bx)$, where $b > 1$, shrinks the curve horizontally by a factor of b.

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