6. Geometry

6.1		Knowledge of perimeter and area of rectangles and circles; and of the area of triangles, parallelograms and trapezia; and of the surface area and volume of prisms, cylinders, spheres, cones and pyramids
		Knowledge of angle properties of parallel and intersecting lines, triangles, all special types of quadrilaterals and polygons
		Understand and use circle theorems:
		Angle at the centre is twice the angle at the circumference; angles in the same segment are equal; opposite angles in cyclic quadrilateral add up to 180°; alternate segment theorem; the theorems listed in the notes of section 3.7

Pay attention to what is given in the formula sheet/question!

6.2	Understand and construct geometrical proofs using formal arguments	The use of theorems listed in the notes of 3.7 and 6.1

Use already known facts and explain clearly, in a step-by-step manner.

6.3	Sine and cosine rules in scalene triangles; area of a triangle $=\dfrac{1}{2}ab\sin C$	Knowledge and use of trigonometry to solve right-angled triangles is expected

As in N5.

6.4	Use of Pythagoras' theorem in 2D and 3D	Recognise Pythagorean triples; 3, 4, 5; 5,12,13; 8,15,17; 7, 24, 25 and simple multiples of these

As in N5.

6.5	Be able to apply trigonometry and Pythagoras' theorem to 2 and 3 dimensional problems	Including the angle between a line and a plane and the angle between two planes; including triangles that do not have right angles

As in N5.

6.6	Sketch and use graphs of $y = \sin x$, $y = \cos x$ and $y = \tan x$ for angles of any size	

| 6.7 | Be able to use the definitions sin θ, cos θ and tan θ, for any positive angle up to 360°(measured in degrees only) | Angles measured anticlockwise will be taken as positive |

As in N5.

| 6.8 | Knowledge and use of 30°, 60°, 90° triangles and 45°, 45°, 90° triangles | The use of the ratios $1 : \sqrt{3} : 2$ and $1 : 1 : \sqrt{2}$ |

Learn how to construct the triangles to give you the **exact trig values**.

| 6.9 | Know and use $\tan\theta = \dfrac{\sin\theta}{\cos\theta}$ and $\sin^2\theta + \cos^2\theta = 1$ | Including expressions to be simplified, proofs of identities and equations solved |

As in N5.

| 6.10 | Solution of simple trigonometric equations in given intervals | Equations will be restricted to single angles: $\sin x = 0.5$; $\sqrt{2}\sin x = \cos x$ for $0° \leqslant x \leqslant 360°$; $\sin^2 x = \dfrac{1}{4}$ for $0° \leqslant x \leqslant 360°$ |

As in N5.