Revision Checklist: GCSE AQA Maths (Higher Tier)

1	2	3	4	5

No understanding   Exam-ready

	1. NUMBER	Rate topics 1 to 5
a.	Ordering integers, decimals & fractions	
b.	Adding, subtracting, multiplying & dividing positive & negative integers	
c.	Adding, subtracting, multiplying & dividing fractions and decimals	
d.	BIDMAS	
e.	Multiples & factors	
f.	HCF & LCM	
g.	Prime factorisation	
h.	Product rule for counting	
i.	Powers & roots	
j.	Fractional indices	
k.	Surds	
l.	Standard form	
m.	Converting between fractions & decimals	
n.	Converting between fractions & recurring decimals	
o.	Relating ratio to fractions	
p.	Using fractions as multipliers	
q.	Conversions of length, area, volume & mass	
r.	Estimation	
s.	Rounding	
t.	Upper & lower bounds	

	2. ALGEBRA	Rate topics 1 to 5
a.	Simplifying algebraic expressions	
b.	Substituting into formulae	
c.	Laws of indices	
d.	Expanding & factorising single brackets	
e.	Expanding & factorising double brackets	
f.	Expanding brackets with surds & fractions	
g.	Expanding triple brackets	
h.	The grouping method	
i.	Changing the subject	
j.	Algebraic proof	
k.	Simple functions	
l.	Inverse & composite functions	
m.	Plot straight-line graphs	
n.	Find equation of a straight line	
o.	Parallel & perpendicular lines	
p.	Find quadratic roots graphically	
q.	Turning points & completing the square	

	(Algebra continued)	Rate topics 1 to 5
r.	Sketching linear & quadratic functions	
s.	Sketching cubic & reciprocal functions	
t.	Sketching exponential & trigonometric functions	
u.	Translations & reflections of a function	
v.	Graphs in real context	
w.	Calculating gradient & area under graph	
x.	Equation of a circle & tangent	
y.	Solve linear equations	
z.	Solve quadratic equations	
aa.	Solve linear simultaneous equations	
ab.	Solve quadratic simultaneous equations	
ac.	Solutions using iteration	
ad.	Translate situations into algebraic equations	
ae.	Solve linear inequalities	
af.	Solve quadratic inequalities	
ag.	Inequalities on a number line	
ah.	Inequalities on a graph	
ai.	Arithmetic sequences	
aj.	Geometric & Fibonacci sequences	
ak.	nth term of linear sequences	
al.	nth term of quadratic sequences	

	3. RATIO, PROPORTION & RATES OF CHANGE	Rate topics 1 to 5
a.	Unit conversions	
b.	Scale factors	
c.	Scale diagrams & maps	
d.	Simplifying ratios	
e.	Using ratios	
f.	Best-buy problems	
g.	Convert between ratios and equations	
h.	Convert between percentages, fractions & decimals	
i.	Percentage change	
j.	Direct & inverse proportion	
k.	Proportion using graphs	
l.	Gradient & rate of change	
m.	Compound interest	

	4. GEOMETRY & MEASURES	Rate topics 1 to 5
a.	Constructions	
b.	Loci problems	
c.	Angles around a point	
d.	Angles on parallel lines	
e.	Angles in a polygon	
f.	Properties of triangles	
g.	Properties of quadrilaterals	
h.	Congruence	
i.	Similarity	
j.	Pythagoras' theorem	
k.	Transformations of shapes	
l.	Fractional & negative scale factors	
m.	Circle theorems	
n.	Plans & elevations	
o.	Scale drawings & bearings	
p.	Areas of triangles, parallelograms & trapezia	
q.	Volume of prisms	
r.	Perimeter & area	
s.	Surface area & volume	
t.	Composite shapes	
u.	Composite solids & frustums	
v.	Arc length & area of sector	
w.	Similarity in 3D	
x.	Trigonometric ratios	
y.	3D trigonometry	
z.	Exact values of $\sin\theta$, $\cos\theta$ & $\tan\theta$	
aa.	Sine & cosine rule	
ab.	Basic operations with vectors	
ac.	Vector diagrams & proofs	

	5. PROBABILITY	Rate topics 1 to 5
a.	Frequency tables & trees	
b.	The probability scale	
c.	Two-way tables	
d.	Venn diagrams	
e.	Tree diagrams	
f.	Calculating probabilities	
g.	Conditional probability	

	6. STATISTICS	Rate topics 1 to 5
a.	Frequency tables *again*	
b.	Bar charts	
c.	Pie charts	
d.	Pictograms	
e.	Line charts	
f.	Time series data	
g.	Histograms	
h.	Cumulative frequency graphs	
i.	Box plots	
j.	Median, mean & mode	

k.	Range, inter-quartile range & outliers	
l.	Comparing data sets	
m.	Scatter graphs & correlation	
n.	Interpolation & extrapolation	

FORMULAE *(not given in exam)*	
The quadratic formula	$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Circumference of a circle	$C = 2\pi r = \pi d$
Area of a circle	$A = \pi r^2$
Pythagoras' theorem	$a^2 + b^2 = c^2$
Trigonometric ratios	$\sin A = \dfrac{a}{c}$
	$\cos A = \dfrac{b}{c}$
	$\tan A = \dfrac{a}{b}$
Sine rule	$\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$
Cosine rule	$a^2 = b^2 + c^2 - 2bc\cos A$
Area of a triangle	$A = \frac{1}{2}ab\sin C$
Area of a trapezium	$A = \frac{1}{2}(a + b)h$
Volume of a prism	$V = $ area of cross section x length
Compound interest	$A = P\left(1 + \dfrac{r}{100}\right)^n$ A = final amount, P = principal amount, r = interest rate, n = number of times
Probability	$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$
	$P(A \text{ and } B) = P(A \text{ given } B) \times P(B)$

FORMULAE *(given in exam)*	
Curved surface area of a cone	$A = \pi r l$
Surface area of a sphere	$A = 4\pi r^2$
Volume of a sphere	$V = \dfrac{4}{3}\pi r^3$
Volume of a cone	$V = \dfrac{1}{3}\pi r^2 h$
Kinematics formulae	$v = u + at$
	$s = ut + \frac{1}{2}at^2$
	$v^2 = u^2 + 2as$

ASSESSMENTS	Duration	Marks
Paper 1 *(non-calculator)*	1 hour 30 minutes	80 marks
Paper 2 *(calculator)*	1 hour 30 minutes	80 marks
Paper 3 *(calculator)*	1 hour 30 minutes	80 marks