Kirkcaldy High School Mathematics Department
National 5 MATHEMATICS
Revision Guide 2022-23

Formula List
given in assessments

FORMULAE LIST

The roots of $ax^2 + bx + c = 0$ are $x = \dfrac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$

Sine rule: $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

Cosine rule: $a^2 = b^2 + c^2 - 2bc \cos A$ or $\cos A = \dfrac{b^2 + c^2 - a^2}{2bc}$

Area of a triangle: $A = \frac{1}{2}ab \sin C$

Volume of a sphere: $V = \frac{4}{3}\pi r^3$
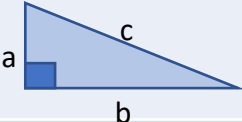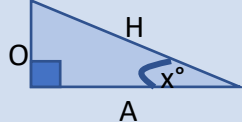
Volume of a cone: $V = \frac{1}{3}\pi r^2 h$

Volume of a pyramid: $V = \frac{1}{3}Ah$

Standard deviation: $s = \sqrt{\dfrac{\Sigma(x - \bar{x})^2}{n-1}}$

or $s = \sqrt{\dfrac{\Sigma x^2 - \dfrac{(\Sigma x)^2}{n}}{n-1}}$, where n is the sample size.

Study Timetable

W/B	Tasks
2nd/9th/16th Jan	Prelim Revision – Task B revision booklet and past papers 2019 and 2022 (not Surds, Indices, Similarity, Vectors, Quadratics or Trigonometry questions).
23rd Jan	Algebra Past Paper Qs.
30th Jan	Fractions, Percentages and Statistics Past Paper Qs.
6th Feb	Straight Line, Surds and Indices Past Paper Qs.
13th Feb	Volume and Shape Past Paper Qs.
20th Feb	Quadratics Past Paper Qs.
27th Feb	Trigonometry Past Paper Qs.
6th Mar	Full paper 2014.
13th Mar	Full papers 2015 and 2016.
20th Mar	Full papers 2017 and 2018.
27th Mar	Full papers 2019 and 2022.
3rd/10th Apr	Extra practice papers provided on MS Teams.
17th/24th Apr	Focused Past paper revision on areas for development.
1st May	SQA National 5 Mathematics Exam Wednesday 3rd May at 9am

DO NOT WRITE ON THE PAST PAPERS!
WRITE ON SEPARATE PAPER SO THAT YOU CAN COMPLETE QUESTIONS MORE THAN ONCE!

NOTE: SIMILARITY AND VECTORS WILL NOT BE ASSESSED THIS YEAR!

Exam Length:
Paper 1 (Non-Calculator) 1 hour
Paper 2 (Calculator) 1 hour 30 minutes

Formulae you need to remember

Interquartile Range	$Q_3 - Q_1$
Semi-interquartile Range	$\dfrac{Q_3 - Q_1}{2}$
Percentage Increase/decrease	$\dfrac{increase\ (or\ decrease)}{original\ amount} \times 100$
Pythagoras	$c^2 = a^2 + b^2$
SOHCAHTOA	$\sin x^o = \frac{O}{H}$ $\cos x^o = \frac{A}{H}$ $\tan x^o = \frac{O}{A}$ O = Opposite, A = Adjacent, H = Hypotenuse
Trig. Identities	$\tan^2 x = \frac{\sin x}{\cos x}$ $\sin^2 x + \cos^2 x =$
Discriminant	$b^2 - 4ac$
Completed square form	$(x - a)^2 + b$ Turning Point at (a, b) Axis of Symmetry at $x = a$
Straight line basic equation	$y = mx + c$ m = Gradient Y-Intercept $(0, c)$
Straight line general equation	$y - b = m(x - a)$ (a, b) = Any point on line
Gradient	$m = \dfrac{y_A - y_B}{x_A - x_B}$
Circumference of a circle	$C = \pi D$ D = Diameter
Area of a circle	$A = \pi r^2$ r = Radius
Length of arc	$AL = \dfrac{Angle}{360} \pi D$
Area of sector	$SA = \dfrac{Angle}{360} \pi r^2$
Area pf a rectangle	$A = lb$ l = Length b = Breadth
Area of a triangle	$A = \frac{1}{2}bh$ b = Base h = Height
Volume of prism	$V = Ah$ A = Area of cross-section h = Height
Volume of cylinder	$V = \pi r^2 h$
Volume of a cuboid	$V = lbh$

Past Papers by Topic

	N5 2014		N5 2015		N5 2016		N5 2017		N5 2018		N5 2019		N5 2022	
	P1	P2	P1	P2	P1	P2	P1	P2	P1	P2	P1	P2	P1	P2
Quadratics	7, 13		7	14	10, 12	9	14	4	5, 8, 16, 19		9, 15	6	5, 14	7
Straight Line	6, 11	10	8		5		6	11	7	14	6	13	6	
Algebra (e.g. Brackets & Factorising, Completing the Square, Algebraic Fractions, Functions, Equations and Change the Subject)	2, 3	3, 11	2, 4, 11	1, 2	4, 6, 8	4, 12	1, 3, 8, 10, 13	9	2, 3, 14, 19a)i	4, 6, 15	1, 3, 7, 8, 14	10, 15	2, 5a, 7, 12, 15	1, 4, 12
Similarity (NOT ASSESSED THIS YEAR)		5		9		11	15			18				
Surds & Indices	8	8	13, 14	7	9	10		12	11, 15		12	4, 16	11, 13	
Fractions	1	9	1, 10		2	13	4,11		1		2		1	
Volume		7		6, 12		7		6	17	7		8	3	3
Trigonometry	5, 10	6, 10, 12	6, 9	3, 11, 13	11	8, 14, 16	7	3, 10, 15	6, 10, 12, 18	8, 9, 13	13	14, 17, 19	8, 9	6, 9, 13, 14
Vectors (NOT ASSESSED THIS YEAR)	4			4,5	1		3	5	1,8	4, 13	3, 10	10	2, 5	
Percentages	9	1				1		2,5		1, 11		1, 9	10	2
Statistics		4	5, 10	8		6	2,12			5	5			5
Shape (e.g. Angles, Pythagoras, Arcs & Sectors)	12	2, 13	3	10	3, 7	5, 15	9	7, 13, 14	9	2, 12, 16, 17	4, 11	11, 12, 18	4, 15	8, 10, 11