



**BROOKFIELD COMMUNITY SCHOOL**

COMMITTED TO EXCELLENCE

# **Y11 Study Skills Evening 2023 Mathematics**

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus



# Mathematics – essential information

- Three papers – all 80 marks, 90 minutes.
- Paper 1 is non-calculator, 2 & 3 are calculator.
- Formula sheet provided at Higher and Foundation\*.
- AQA exam board.



# Mathematics – ongoing revision throughout the year

- Bespoke do it now tasks based on prior performance and key topics every lesson.
- Topic tests written from past exam questions, teacher marked and with time devoted to fixing any errors.
- Past paper homework – half a past paper per week to be completed and reviewed live in class every Thursday.



**BROOKFIELD COMMUNITY SCHOOL**  
COMMITTED TO EXCELLENCE

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus



# Mathematics – making revision effective

- Using revision lists (Corbett maths).
- Using books/topic tests.
- Using feedback from the mocks.



**BROOKFIELD COMMUNITY SCHOOL**  
COMMITTED TO EXCELLENCE

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus



# Mathematics – going the extra mile

- Using revision lists (Corbett maths).
- Will be shared with students to support independent revision.



**BROOKFIELD COMMUNITY SCHOOL**  
COMMITTED TO EXCELLENCE

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus



Angle Facts - Video 35, 30, 34, 39  
 Types of Angle - Video 38  
 Angles in Parallel Lines - Video 25  
 Angles in a Triangle - Video 37  
 Angles in a Quadrilateral - Video 33  
 Angles in Polygons - Video 32  
 Bearings - Videos 26, 27  
 Scales & Maps - Video 283  
 Perimeter - Video 241  
 Area of Rectangles/Triangles - Videos 45, 49  
 Area of a Trapezium - Video 48  
 Units - Videos 347, 349  
 Sensible Estimates - Video 285  
 Line Symmetry - Video 316  
 Rotational Symmetry - Video 317  
 Constructions - Videos 72, 78, 83  
 Loci - Videos 75, 76, 77  
 Faces, Edges, Vertices - Videos 5, 3  
 Nets - Video 4  
 Views and Elevations - Video 354  
 Time Calculations - Video 322  
 Timetables - Video 320  
 Distance Charts - Video 318  
 Speed, Distance, Time - Video 299  
 Travel Graphs - Video 171  
 Density - Video 384  
 Pressure - Video 385  
 Translations - Video 325, 326  
 Reflections - Videos 272, 273  
 Rotations - Video 275  
 Enlargements - Videos 104, 105, 107  
 Parts of the Circle - Video 61  
 Circumference - Video 60, 243  
 Area of a Circle - Video 59, 47  
 Arc Length - Video 58  
 Area of a Sector - Video 46  
 Volume of a Cylinder - Video 357  
 Pythagoras - Video 257  
 Trigonometry - Videos 329, 330, 331  
 Exact Trig Values - Video 341  
 Similar Shapes (sides) - Video 292  
 Congruent Triangles - Video 67  
 Volume of a Cuboid/Prism - Video 355, 356  
 Volume of a Sphere/Cone - Videos 359, 361  
 Surface Area - Video 310  
 Surface area of Sphere/Cone - Videos 313, 314  
 Vectors - Video 353a, 353

[www.corbettmaths.com/contents](http://www.corbettmaths.com/contents)

## GCSE Foundation Tier Checklist

AQA

Multiplication - Video 199, 200  
 Division - Video 98  
 Addition - Video 6  
 Subtraction - Video 304  
 Rounding - Video 276, 277a, 277b, 278, 280  
 Estimation - Video 215  
 Order of Operations - Video 211  
 Ordering Decimals - Video 95  
 Arithmetic with Decimals - Videos 90, 91, 92, 93, 94  
 Multiples and Factors - Videos 220, 216  
 Prime Numbers - Video 225  
 Square Numbers and Square Roots - Videos 226, 228  
 Cube Numbers and Cube Roots - Videos 212, 214  
 Product of Primes - Video 223  
 LCM/HCF - Videos 218, 219, 224  
 Indices - Videos 172, 174  
 Negative Indices - Video 175  
 Standard Form - Video 300, 302, 303  
 Fractions of Amounts - Video 137  
 Adding Fractions - Video 133  
 Multiplying Fractions - Video 142  
 Dividing Fractions - Video 134  
 Reciprocals - Video 145  
 Fractions, Decimals, Percentages - Videos 121 to 129  
 Expressing as Fraction or % - Videos 136, 237  
 Percentages of Amounts - Videos 234, 235, 238  
 Percentage Change - Video 233  
 Simple Interest - Video 236a  
 Compound Interest - Video 236  
 Reverse Percentages - Video 240  
 Ratio - Videos 269, 270, 271  
 Currency - Video 214a  
 Recipes - Video 256  
 Negative Numbers - Videos 205-209  
 Place Value - Video 222, 222a  
 Error Intervals - Video 377  
 Money - Video 400  
 Best Buys - Video 210  
 Proportion - Videos 255a, 254  
 Use of a Calculator - Video 352

Tally Charts - Video 321  
 Frequency Trees - Video 376  
 Two-way Tables - Video 319  
 Pictograms - Videos 161, 162  
 Bar Charts - Videos 147, 148  
 Line Graphs - Video 160  
 Pie Charts - Video 163, 164  
 Probability - Videos 245, 246, 248  
 Relative Frequency - Video 248  
 Listing Outcomes - Video 253  
 Scatter Graphs - Videos 165 to 168  
 Averages & Range - Videos 56, 50, 53, 57  
 Mode: Frequency Table - Video 56a  
 Median: Frequency Table - Video 51  
 Combined Mean - Video 53a  
 Estimated Mean - Video 55  
 Venn Diagrams - Video 380  
 Tree Diagrams - Video 252  
 Reading Tables - Video 387  
 Samples - Video 281a  
 Coordinates - Video 84  
 Function Machine - Video 386  
 Writing Expressions - Video 16  
 Collecting Like Terms - Video 9  
 Multiplying & Dividing Terms - Videos 18, 11  
 Laws of Indices - Video 174  
 Sequences - Videos 286, 287, 290, 287a  
 Geometric Progressions - Video 375  
 The nth Term - Video 288  
 Expanding Brackets - Videos 13, 14  
 Factorising - Video 117  
 Factorising Quadratics - Videos 118, 120  
 Solving Equations - Video 110, 113, 266  
 Forming Equations - Videos 114, 115  
 Inequalities - Videos 177, 178, 179  
 Conversion Graphs - Video 151  
 Drawing Linear Graphs - Video 186  
 $y = mx + c$  - Video 191  
 Gradient - Video 189  
 Real Life Graphs - Video 171a  
 Parallel graphs - Video 196  
 Substitution - Video 20  
 Changing the Subject - Video 7  
 Simultaneous Equations - Videos 295, 297  
 Quadratic Graphs - Video 264  
 Cubic Graphs - Video 344  
 Reciprocal Graphs - Video 346



**BROOKFIELD COMMUNITY SCHOOL**  
COMMITTED TO EXCELLENCE

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus



Adding Fractions - Video 133  
 Multiplying Fractions - Video 142  
 Dividing Fractions - Video 134  
 Reciprocal - Video 145  
 Decimals - Video 90, 91, 92, 93, 94  
 Use of a Calculator - Video 352  
 Estimation - Video 215  
 Best Buys - Video 210  
 Currency - Video 214a  
 Conversion Graphs - Video 151, 152  
 LCM/HCF - Videos 218, 219  
 Product of Primes - Videos 223, 224  
 Indices - Videos 172, 174  
 Indices (fractional/negative) - Videos 173, 175  
 Standard Form - Videos 300, 301, 302, 303  
 Percentages of Amounts - Videos 234, 235, 238  
 Percentage change - Video 233  
 Simple Interest - Video 236a  
 Compound Interest - Video 236  
 Reverse Percentages - Video 240  
 Recurring Decimals to Fractions - Video 96  
 Ratio - Videos 270, 271, 271a, 271b, 271c  
 Direct Proportion - Video 254  
 Inverse Proportion - Video 255  
 Proportional Graphs - Video 255b  
 Proportion (application) - Video 255c  
 Limits of Accuracy - Videos 183, 184  
 Surds - Videos 305, 306, 307, 308  
 Product Rule for Counting - Video 383  
 Error Intervals - Video 377, 280  
 Collecting Like Terms - Video 9  
 Expanding Brackets - Videos 13, 14, 15  
 Factorising - Video 117  
 Factorising Quadratics - Videos 118, 119, 120, 119a  
 Algebraic Fractions - Videos 21, 22, 23, 24  
 Sequences (nth term) - Videos 288, 289  
 nth term (quadratics) - Video 388  
 Substitution - Video 20  
 Equations - Videos 110, 113, 114, 115  
 Changing the Subject - Videos 7, 8  
 Inequalities - Videos 177, 178, 179  
 Inequalities (Regions) - Video 182  
 Quadratic Inequalities - Video 378  
 Linear Graphs - Videos 191, 186, 189, 194  
 Midpoint of a Line - Video 198  
 Distance between 2 points - Video 185  
 Real-life Linear Graphs - Video 171a  
 Parallel or Perpendicular Lines - Videos 196, 197  
 Simultaneous Equations - Video 295  
 Non-linear Simultaneous Equations - Video 298  
 Graphical Simultaneous Equations - Video 297

[www.corbettmaths.com/contents](http://www.corbettmaths.com/contents)

## AQA GCSE Higher Tier Checklist



Angles in Parallel Lines - Video 25, 39  
 Bearings - Video 26, 27  
 Angles in Polygons - Video 32  
 Constructions - Video 78, 72, 79, 80, 70  
 Loci - Videos 75, 76, 77  
 Views - Video 354  
 Area of a Trapezium - Video 48  
 Circumference - Video 60  
 Area of a Circle - Video 40  
 Arc Length - Video 58  
 Area of a Sector - Video 48  
 Volume of a Cylinder - Video 357  
 Pythagoras - Video 257, 259  
 Trigonometry - Videos 329, 330, 331  
 3D Trig and Pythagoras - Videos 259, 332  
 Exact Trig Values - Video 341  
 Volume of a Prism - Video 356  
 Volume of Cone/Pyramid/Sphere - Videos 359-361  
 Volume of a Frustum - Video 360a  
 Surface Area of a Prism - Video 311  
 Surface Area of Cone/Sphere - Videos 314, 313  
 Metric Units (area/volume) - Videos 350, 351  
 Translations - Video 325  
 Reflections - Video 272  
 Rotations - Video 275  
 Enlargements - Videos 104, 106, 107, 108  
 Similar Shapes - Videos 292, 293a, 293b  
 Circle Theorems - Videos 64, 65  
 Sine Rule - Video 333  
 Cosine Rule - Videos 335, 336  
 1/2abSinC - Video 337  
 Vectors - Video 353  
 Column Vectors - Video 353a  
 Travel Graphs - Video 171  
 Speed, Distance, Time - Video 299  
 Density - Video 384  
 Pressure - Video 385  
 Geometric Proof - Video 366  
 Congruent Triangles - Video 67  
 Invariant Points - Video 392

Frequency Trees - Video 376  
 Two-way Tables - Video 319  
 Pie Charts - Videos 163, 164  
 Scatter Graphs - Videos 165, 166  
 Histograms - Video 157, 158, 159  
 Cumulative Frequency - Videos 153, 154  
 Box Plots - Video 149  
 Quartiles - Video 57a  
 Estimated Mean - Video 55  
 Combined Mean - Video 53a  
 Median (frequency table) - Videos 51, 52  
 Modal class (frequency table) - Video 56a  
 Probability - Video 250  
 Relative frequency - Video 248  
 Samples - Video 281a  
 Tree Diagrams - Video 252  
 Conditional Probability - Video 247  
 Venn Diagrams - Video 380  
 Equation of a Circle - Video 12  
 Equation of a tangent - Video 372  
 Instantaneous rates of change - Video 390a  
 Average rates of change - Video 390b  
 Area under a curve - Video 389  
 Composite Functions - Video 370  
 Inverse Functions - Video 369  
 Quadratic Graphs - Video 264  
 Solving Quadratics Graphically - Videos 367c, 367d  
 Sketching Quadratics - Video 265  
 Trigonometric Graphs - Videos 338, 339  
 Cubic Graphs - Video 344  
 Reciprocal Graphs - Video 346  
 Exponential Graphs - Video 345  
 Geometric Sequences - Video 375  
 Algebraic Proof - Video 365  
 Quadratic Formula - Video 267  
 Completing the Square - Video 10, 371  
 Transformations of Graphs - Video 323, 324  
 Identities - Video 16a  
 Iteration - Video 373, 373a, 373b



**BROOKFIELD COMMUNITY SCHOOL**  
COMMITTED TO EXCELLENCE

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus



# Mathematics – going the extra mile

- Focus on content you have been taught – use the videos and worked solutions to support you.

1. Work out, as a simplified fraction.

$$\frac{3}{4} + \frac{1}{12}$$

.....  
(2)

1. Work out, as a simplified fraction.

$$\frac{3}{4} + \frac{1}{12} = \frac{9}{12} + \frac{1}{12} = \frac{10}{12} = \frac{5}{6}$$

$\frac{5}{6}$   
.....  
(2)



**BROOKFIELD COMMUNITY SCHOOL**  
COMMITTED TO EXCELLENCE

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus





# Mathematics – going the extra mile

- Use your books and topic tests to support you.
- Every topic test is written from past paper questions, broken down by skill and scored as a percentage to help you compare and prioritise.
- Students complete personalised feedback after every topic test.



**BROOKFIELD COMMUNITY SCHOOL**  
COMMITTED TO EXCELLENCE

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus



# Mathematics – going the extra mile

TOPIC TEST: Year 7 Higher 2. Number Skills

Calculators allowed on Q8 & 9 only

Score 18 / 24 75 %

Question	Skill	My Score / Out Of
Q1 – Q2	Understand factors, multiples, HCF and LCM	6 / 6
Q3	Calculate with negative numbers	4 / 4
Q4	Use mental and written strategies for multiplication	4 / 4
Q5	Use mental and written strategies for division	1 / 1
Q6	Carry out calculations involving squares, cubes, square roots and cube roots.	0 / 3
Q7	Estimate a calculation by rounding	0 / 3
Q8 – Q9	Use a scientific calculator accurately	3 / 3
	Total	18 / 24



**BROOKFIELD COMMUNITY SCHOOL**  
COMMITTED TO EXCELLENCE

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus



# Mathematics – going the extra mile

**Topic test - worked solution**

Q3. This angle is measured to the nearest degree. Use trigonometry to work out the maximum possible value of length  $x$ , to 2 decimal places.

Not drawn accurately

S<sup>o</sup>Hc<sup>A</sup>HT<sup>o</sup>A

$$71.5 \leq x < 73.5$$

$\sin \theta = \frac{o}{h}$   
 $\sin 73 = \frac{x}{8} \Rightarrow x = 8 \sin 73$   
 $x = 7.63$

Answer 7.63 cm (Total 3 marks)

- 1- Start by labelling the triangle
- 2- Then find the bounds for the angle
- 3- Then use S<sup>o</sup>Hc<sup>A</sup>H<sup>T</sup>o<sup>A</sup> to pick which calculation to use
- 4- Do the calculation in this case Sin
- 5- calculate answer and write answer

**What mistake did you make?**

The mistake I made was not reading the question correctly and therefore not using bounds in my angle calculation.

e.g rounded to nearest ten  
 5 down  $\leftarrow 75 \leq x < 85 \rightarrow$  5 up

**Impact check**

This hypotenuse is measured to the nearest centimetre. Use trigonometry to work out the maximum possible value of length  $x$ , to 2 decimal places.

Not drawn accurately

S<sup>o</sup>Hc<sup>A</sup>HT<sup>o</sup>A

$$7.5 \leq x < 8.5$$

$\sin \theta = \frac{o}{h}$   
 $\sin 73 = \frac{x}{8.5} \Rightarrow x = 8.5 \sin 73$   
 $x = 8.08$

Answer 8.08 cm



# Mathematics – going the extra mile

- Using feedback from your mocks effectively is crucial for continuing to improve all the way up to the final exams in the summer.
- Every student will have received personalised feedback corresponding to videos for support in that area of the curriculum.



**BROOKFIELD COMMUNITY SCHOOL**  
COMMITTED TO EXCELLENCE

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus



# Mathematics – going the extra mile

Mathematics Assessment Feedback						
Paper	November 2019 Paper 1F			sparx		
Name	Joe Bloggs					
Teacher	Mr Stewart					
Questions	Topic	Score	Sparx Code			
1	Understanding and ordering decimals	1 / 1	U435			
2	Solving equations with one step	1 / 1	U755			
3	Fractions, decimals and percentages	0 / 1	U594,U888			
4	Calculating with roots and powers	1 / 1	U851			
5	Using a written method to multiply integers	1 / 3	U127			
6a	Interpreting bar charts	0 / 1	U557			
6b	Interpreting bar charts	1 / 1	U557			
6c	Interpreting bar charts	1 / 1	U557			
6d	Drawing bar charts	2 / 2	U363			
7a	Using a written method to divide with decimals	1 / 1	U868			
7b	Multiplying and dividing with place value, Using a written method to multiply decimals	1 / 1	U735,U293			
8a	Adding and subtracting decimals	2 / 2	U478			
8b	Adding and subtracting decimals	2 / 2	U478			
9	Using a written method to multiply decimals	2 / 2	U293			
10	Multiplying and dividing with place value, Understanding and ordering integers	0 / 3	U735,U600			
11a	Writing probabilities as fractions	1 / 1	U408			
11b	Writing probabilities as fractions	0 / 2	U408			
12	Constructing fractions, Constructing and solving equations	2 / 3	U163,U599			
13	Rounding integers, Rounding decimals, Estimating calculations	2 / 2	U480,U298,U225			
14	Area and perimeter, Writing and simplifying ratios	3 / 3	U993,U687			
15	Angles on a line and about a point	3 / 3	U390			
16	Calculating with roots and powers	0 / 1	U851			
17	Plotting straight line graphs	2 / 3	U741			
18a	Constructing fractions	2 / 2	U163			
18b	Finding percentages of amounts without a calculator	3 / 3	U554			
19a	Writing and simplifying ratios	1 / 1	U687			
19b	Writing and simplifying ratios	1 / 1	U687			
20	Writing probabilities as fractions, Probabilities of mutually exclusive events	1 / 1	U408,U683			
21	Solving equations with the variable on both sides	2 / 3	U870			
22	Sharing amounts in a given ratio, Angles in triangles	2 / 4	U577,U628			
23	Types of data	1 / 1	U322			
24a	Reflection	1 / 1	U799			
24b	Rotation	1 / 1	U696			
25a	Position-to-term rules for geometric sequences	0 / 1	U958			
25b	Special sequences	0 / 2	U680			
26	Simplifying algebraic fractions by cancelling, Substitution into formulae	2 / 2	U103,U585			
27	Index rules with positive indices	3 / 3	U235			
28	Finding the volume of cylinders, Finding the volume of spheres	0 / 4	U915,U617			
29	Sharing amounts in a given ratio	4 / 4	U577			
30a	Multiplying and dividing numbers in standard form	2 / 2	U264			
30b	Adding and subtracting numbers in standard form	0 / 2	U290			
31	Interpreting inverse proportion equations	1 / 1	U364			
		Total	56 / 80			



Mathematics Assessment Feedback

Paper November 2019 Paper 1F  
 Name Joe Bloggs  
 Teacher Mr Stewart

sparx

Questions	Topic	Score	Sparx Code
1	Understanding and ordering decimals	1 / 1	U435
2	Solving equations with one step	1 / 1	U755
3	Fractions, decimals and percentages	0 / 1	U594,U888
4	Calculating with roots and powers	1 / 1	U851
5	Using a written method to multiply integers	1 / 3	U127
6a	Interpreting bar charts	0 / 1	U557
6b	Interpreting bar charts	1 / 1	U557
6c	Interpreting bar charts	1 / 1	U557
6d	Drawing bar charts	2 / 2	U363
7a	Using a written method to divide with decimals	1 / 1	U868
7b	Multiplying and dividing with place value, Using a written method to multiply decimals	1 / 1	U735,U293
8a	Adding and subtracting decimals	2 / 2	U478
8b	Adding and subtracting decimals	2 / 2	U478
9	Using a written method to multiply decimals	2 / 2	U293
10	Multiplying and dividing with place value, Understanding and ordering integers	0 / 3	U735,U600
11a	Writing probabilities as fractions	1 / 1	U408
11b	Writing probabilities as fractions	0 / 2	U408
12	Constructing fractions, Constructing and solving equations	2 / 3	U163,U599
13	Rounding integers, Rounding decimals, Estimating calculations	2 / 2	U480,U298,U225
14	Area and perimeter, Writing and simplifying ratios	3 / 3	U993,U687
15	Angles on a line and about a point	3 / 3	U390
16	Calculating with roots and powers	0 / 1	U851
17	Plotting straight line graphs	2 / 3	U741
18a	Constructing fractions	2 / 2	U163
18b	Finding percentages of amounts without a calculator	3 / 3	U554
19a	Writing and simplifying ratios	1 / 1	U687
19b	Writing and simplifying ratios	1 / 1	U687
20	Writing probabilities as fractions, Probabilities of mutually exclusive events	1 / 1	U408,U683
21	Solving equations with the variable on both sides	2 / 3	U870
22	Sharing amounts in a given ratio, Angles in triangles	2 / 4	U577,U628
23	Types of data	1 / 1	U322
24a	Reflection	1 / 1	U799
24b	Rotation	1 / 1	U696
25a	Position-to-term rules for geometric sequences	0 / 1	U958
25b	Special sequences	0 / 2	U680
26	Simplifying algebraic fractions by cancelling, Substitution into formulae	2 / 2	U103,U585
27	Index rules with positive indices	3 / 3	U235
28	Finding the volume of cylinders, Finding the volume of spheres	0 / 4	U915,U617
29	Sharing amounts in a given ratio	4 / 4	U577
30a	Multiplying and dividing numbers in standard form	2 / 2	U264
30b	Adding and subtracting numbers in standard form	0 / 2	U290
31	Interpreting inverse proportion equations	1 / 1	U364
Total		56 / 80	



**BROOKFIELD**  
 COMMITTED TO EXCELLENCE



# Mathematics – going the extra mile

- XP Boost homework is an opportunity for each student to continue their learning by answering more consolidation and revision questions from topics previously covered in homework.
- Target homework is made up of up to six bespoke questions that Sparx thinks each student will find challenging.



# Mathematics – going the extra mile

- There is no ‘magic formula’ to suddenly boost a student by one or two grades overnight.
- Improvement in Maths is incremental, and takes time and effort.
- ‘Great things don’t come from comfort zones’.



**BROOKFIELD COMMUNITY SCHOOL**  
COMMITTED TO EXCELLENCE

Part Of The  
**REDHILL ACADEMY TRUST**  
Exsisto Optimus

