

Savio Salesian College

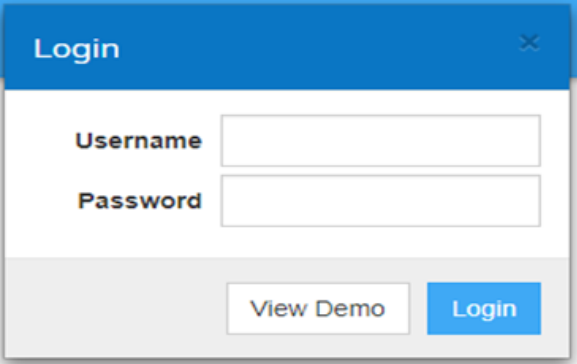

Mathematics Department



MathsWatch

ONLINE REVISION VIDEOS
<https://vle.mathswatch.co.uk/vle>

100's of FREE videos to help support students with their revision. Also includes practice questions.




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Get your maths revision material from the school website here.

Raising achievement

Foundation/Higher Tier

Grades 1 – 9

Mathematics department

Tiers

Foundation Tier (Grades 1 – 5)

Higher Tier (Grade 4 - 9)

How to revise for Maths

Below offers a guide on how best to use your time to prepare thoroughly for GCSE Mathematics.

Identify the topics into three categories:

- **Green**, Amber and **Red**. **Green** means you have mastered the topic, **Amber** means you are not yet secure, **Red** means this is a priority.

Develop:

- Speak to your teacher to guide you through each topic so you can start practising independently.
- Use the online resources to support your understanding and help you to develop model answers.

Consolidation:

- The best way to improve your understanding is by completing questions for each topic rather than reading over notes/revision guides. You will find practice questions, as well as guided videos to support you at home, on the Mathswatch website.
- If you are stuck, make a note of the question you don't understand and ask for support in school. During revision sessions use the opportunity to tackle your **Amber** and **Red** topics. Bring your revision list to revision!!

Mastering the skill:

- Completing past papers, in timed conditions, will be a great way to assess your understanding and to develop confidence.
- Use the past paper mark schemes to identify where the marks are going to be awarded.
- Develop revision cards to summarise the key learning points for each topics.

Don't give up:

- Replace I can't do with, I can't do it yet!!

Mathswatch Grade Descriptors

Use the grid below to identify the topics you need to work on

| | Grade 9 - 8 | Mathswatch clip | Green | Amber | Red |
|----------------------|---|-----------------|-------|-------|-----|
| Number | Upper and Lower Bounds | 206 | | | |
| | Surds - Introduction to Surds | 207a | | | |
| | Surds - Surd Expressions | 207b | | | |
| | Surds - Rationalising the Denominator | 207c | | | |
| Algebra | Perpendicular Lines | 208 | | | |
| | Completing the Square - Basics | 209a | | | |
| | Completing the Square - Solving | 209b | | | |
| | Completing the Square - Sketching | 209c | | | |
| | Algebraic Fractions - Simplifying | 210a | | | |
| | Algebraic Fractions - Solving | 210b | | | |
| | Simultaneous Equations with a Quadratic | 211 | | | |
| | Solve Quadratic Inequalities | 212 | | | |
| | Finding the nth Term of a Quadratic | 213 | | | |
| | Inverse Functions - Introduction | 214a | | | |
| | Inverse Functions - Harder Questions | 214b | | | |
| | Composite Functions | 215 | | | |
| Velocity-Time Graphs | 216 | | | | |
| Geometry | Pythagoras in 3D | 217 | | | |
| | Trigonometry in 3D | 218 | | | |
| | Vectors | 219 | | | |

Mathswatch Grade Descriptors

Use the grid below to identify the topics you need to work on

| | Grade 7 | Mathswatch clip | Green | Amber | Red |
|-------------|---|-----------------|-------|-------|-----|
| Number | Fractional Indices | 188 | | | |
| | Recurring Decimals - Proof | 189 | | | |
| Algebra | Rearranging difficult Formulae | 190 | | | |
| | Solving Quadratics with the Formula | 191 | | | |
| | Factorising Hard Quadratics | 192 | | | |
| | Algebraic Proof | 193 | | | |
| | Exponential Functions | 194 | | | |
| | Trigonometric Graphs - Sine and Cosine | 195a | | | |
| | Trigonometric Graphs - Tangent | 195b | | | |
| | Transformation of Functions - Polynomial Functions | 196a | | | |
| | Transformation of Functions - Trigonometric Functions | 196b | | | |
| | Equation of a Circle | 197 | | | |
| Regions | 198 | | | | |
| Ratio | Direct and Inverse Proportion | 199 | | | |
| Geometry | Similarity - Area and Volume | 200 | | | |
| | The Sine Rule | 201 | | | |
| | The Cosine Rule | 202 | | | |
| | Area of a Triangle Using Sine | 203 | | | |
| Probability | And and Or Probability Questions | 204 | | | |
| | Histograms | 205 | | | |

Mathswatch Grade Descriptors

Use the grid below to identify the topics you need to work on

| | Grade 6 | Mathswatch clip | Green | Amber | Red |
|-------------|--|-----------------|-------|-------|-----|
| Number | | | | | |
| | Recurring Decimals to Fractions | 177 | | | |
| Algebra | Product of Three Binomials | 178 | | | |
| | Iteration - Trial and Improvement | 179 | | | |
| | Iterative Processes | 180 | | | |
| Geometry | Enlargement - Negative Scale Factor - Using Construction Lines | 181a | | | |
| | Enlargement - Negative Scale Factor - Using Column Vectors | 181b | | | |
| | Combinations of Transformations | 182 | | | |
| | Circle Theorems | 183 | | | |
| | Proof of Circle Theorems | 184 | | | |
| Probability | Probability using Venn Diagrams | 185 | | | |
| | Cumulative Frequency | 186 | | | |
| | Boxplots | 187 | | | |

Mathswatch Grade Descriptors

Use the grid below to identify the topics you need to work on

| | Grade 5 | Mathswatch clip | Green | Amber | Red |
|---------------------|--|----------------------|-------|-------|-----|
| Number | Negative Indices | 154 | | | |
| | Error Intervals | 155 | | | |
| | Mathematical Reasoning | 156 | | | |
| Algebra | Factorising and Solving Quadratics | 157 | | | |
| | The Difference of Two Squares | 158 | | | |
| | Finding the Equation of a Straight Line - $y=mx+c$ | 159a | | | |
| | Finding the Equation of a Straight Line - Gradient and Coordinates | 159b | | | |
| | Roots and Turning Points of Quadratics | 160 | | | |
| | Cubic and Reciprocal Graphs | 161 | | | |
| | Simultaneous Equations Algebraically | 162 | | | |
| | Geometric Progressions | 163 | | | |
| Ratio | Compound Interest and Depreciation | 164 | | | |
| Geometry | Loci | 165 | | | |
| | Congruent triangles | 166 | | | |
| | Sectors of a Circle | 167 | | | |
| | Trigonometry | 168 | | | |
| | Spheres | 169 | | | |
| | Pyramids | 170 | | | |
| | Cones | 171 | | | |
| | Frustums | 172 | | | |
| | Exact Trigonometric Values | 173 | | | |
| | Introduction to Vectors | 174 | | | |
| | Probability | Harder Tree Diagrams | 175 | | |
| Stratified sampling | | 176 | | | |

Mathswatch Grade Descriptors

Use the grid below to identify the topics you need to work on

| | Grade 4 | Mathswatch clip | Green | Amber | Red |
|---------------------|---|-----------------|-------|-------|-----|
| Number | Index Notation | 131 | | | |
| | Introduction to Bounds | 132 | | | |
| Algebra | Midpoint of a Line on a Graph | 133 | | | |
| | Expanding and Simplifying Brackets - Single Set of Brackets | 134a | | | |
| | Expanding and Simplifying Brackets - Double Set of Brackets | 134b | | | |
| | Solving Equations - Balancing | 135a | | | |
| | Solving Equations - Float & Ping | 135b | | | |
| | Rearranging Simple Formulae | 136 | | | |
| | Forming Formulae and Equations | 137 | | | |
| | Inequalities on a Number Line | 138 | | | |
| | Solve Linear Inequalities | 139 | | | |
| | Simultaneous Equations Graphically | 140 | | | |
| Fibonacci Sequences | 141 | | | | |
| Ratio | Compound Units | 142 | | | |
| | Distance-Time Graphs | 143 | | | |
| | Similar Shapes | 144 | | | |
| Geometry | Bisecting an Angle | 145 | | | |
| | Constructing Perpendiculars - Bisecting a Line | 146a | | | |
| | Constructing Perpendiculars - From any Point | 146b | | | |
| | Draw a Triangle Using Compasses | 147 | | | |
| | Enlargements | 148 | | | |
| | Tangents, Arcs, Sectors and Segments | 149 | | | |
| | Pythagoras' Theorem - A Simple Approach | 150a | | | |
| | Pythagoras' Theorem - An Algebraic Approach | 150b | | | |
| | Pythagoras' Theorem - Line on a Graph | 150c | | | |
| Probability | Simple Tree Diagrams | 151 | | | |
| | Sampling Populations | 152 | | | |
| | Time Series | 153 | | | |

Mathswatch Grade Descriptors

Use the grid below to identify the topics you need to work on

| | Grade 3 | Mathswatch clip | Green | Amber | Red |
|---------------------------------|--|-----------------|-------|-------|-----|
| Number | Multiplying Decimals | 66 | | | |
| | Dividing Decimals | 67 | | | |
| | Four Rules of Negatives - Adding and Subtracting | 68a | | | |
| | Four Rules of Negatives - Multiplying and Dividing | 68b | | | |
| | Listing Strategies | 69 | | | |
| | Comparing Fractions | 70 | | | |
| | Adding and Subtracting Fractions - A Standard Method | 71a | | | |
| | Adding and Subtracting Fractions - An Alternative Method | 71b | | | |
| | Finding a Fraction of an Amount | 72 | | | |
| | Multiplying Fractions | 73 | | | |
| | Dividing Fractions | 74 | | | |
| | BODMAS/BIDMAS | 75 | | | |
| | Reciprocals | 76 | | | |
| | Calculator Questions | 77 | | | |
| | Product of Primes | 78 | | | |
| | Highest Common Factor (HCF) | 79 | | | |
| | Lowest Common Multiple (LCM) | 80 | | | |
| | Squares, Cubes and Roots | 81 | | | |
| | Working with Indices | 82 | | | |
| | Standard Form | 83 | | | |
| | Decimals and Fractions | 84 | | | |
| | Fractions, Percentages, Decimals | 85 | | | |
| | Percentage of an Amount (Calc.) | 86 | | | |
| | Percentage of an Amount (Non-Calc.) | 87 | | | |
| | Change to a Percentage (Calc.) | 88 | | | |
| | Change to a Percentage (Non-Calc.) | 89 | | | |
| Rounding to Significant Figures | 90 | | | | |
| Estimating Answers | 91 | | | | |
| Using Place Value | 92 | | | | |
| Algebra | Expanding Brackets | 93 | | | |
| | Simple Factorisation | 94 | | | |
| | Substitution | 95 | | | |
| | Straight Line Graphs | 96 | | | |
| | The Gradient of a Line | 97 | | | |
| | Drawing Quadratic Graphs | 98 | | | |
| | Sketching Functions | 99 | | | |
| | Solving Equations using Flowcharts | 100 | | | |
| | Subject of a Formula using Flowcharts | 101 | | | |
| | Generating a Sequence from the nth Term | 102 | | | |
| | Finding the nth Term | 103 | | | |
| | Special Sequences | 104 | | | |

| | | | | | |
|-------------|---|------|--|--|--|
| Ratio | Exchanging Money | 105 | | | |
| | Sharing using Ratio | 106 | | | |
| | Ratios, Fractions and Graphs | 107 | | | |
| | Increase/Decrease by a Percentage | 108 | | | |
| | Percentage Change | 109 | | | |
| | Reverse Percentage Problems | 110 | | | |
| | Simple Interest | 111 | | | |
| Geometry | Metric conversions | 112 | | | |
| | Problems on Coordinate Axes | 113 | | | |
| | Surface Area of a Prism - Cuboids | 114a | | | |
| | Surface Area of a Prism - Triangular Prisms | 114b | | | |
| | Volume of a Cuboid | 115 | | | |
| | Circle Definitions | 116 | | | |
| | Area of a Circle | 117 | | | |
| | Circumference of a Circle | 118 | | | |
| | Volume of a Prism | 119 | | | |
| | Angles and Parallel Lines | 120 | | | |
| | Angles in a Triangle | 121 | | | |
| | Properties of Special Triangles | 122 | | | |
| | Angle Sum of Polygons | 123 | | | |
| Bearings | 124 | | | | |
| Probability | Experimental Probabilities | 125 | | | |
| | Possibility Spaces | 126 | | | |
| | Venn Diagrams - Introduction | 127a | | | |
| | Venn Diagrams - Notation | 127b | | | |
| | Representing Data - Pie Charts | 128a | | | |
| | Representing Data - Stem and Leaf Diagrams | 128b | | | |
| | Averages from a table - Basics | 130a | | | |
| | Averages from a table - Estimate for the Mean | 130b | | | |

Mathswatch Grade Descriptors

Use the grid below to identify the topics you need to work on

| | Grade 2 | Mathswatch clip | Green | Amber | Red |
|----------------------------|--|-----------------|-------|-------|-----|
| Number | Adding Integers and Decimals | 17 | | | |
| | Subtracting Integers and Decimals | 18 | | | |
| | Multiplying Integers | 19 | | | |
| | Dividing Integers | 20 | | | |
| | Inverse Operations | 21 | | | |
| | Money Questions - Non-Calculator Questions | 22a | | | |
| | Money Questions - Calculator Questions | 22b | | | |
| | Negatives in Real Life | 23 | | | |
| | Introduction to Fractions | 24 | | | |
| | Equivalent Fractions | 25 | | | |
| | Simplifying Fractions | 26 | | | |
| | Half-Way Values | 27 | | | |
| | Factors, Multiples and Primes | 28 | | | |
| | Introduction to Powers/Indices | 29 | | | |
| | Multiplying and Dividing by Powers of 10 | 30 | | | |
| | Rounding to the Nearest 10, 100, 1000 | 31 | | | |
| Rounding to Decimal places | 32 | | | | |
| Algebra | Simplifying - Addition and Subtraction | 33 | | | |
| | Simplifying - Multiplication | 34 | | | |
| | Simplifying - Division | 35 | | | |
| | Function Machines | 36 | | | |
| | Generating a Sequence - Term to Term | 37 | | | |
| Ratio | Introduction to Ratio | 38 | | | |
| | Using Ratio for Recipe Questions | 39 | | | |
| | Introduction to Percentages | 40 | | | |
| | Value for Money | 41 | | | |
| | Simple Proportion | 42 | | | |
| Geometry | Properties of Solids | 43 | | | |
| | Nets | 44 | | | |
| | Angles on a Line and at a Point | 45 | | | |
| | Measuring and drawing Angles - Measuring | 46a | | | |
| | Measuring and drawing Angles - Drawing | 46b | | | |
| | Drawing a Triangle Using a Protractor | 47 | | | |
| | Reflections | 48 | | | |
| | Rotations | 49 | | | |
| | Translations | 50 | | | |
| | Plans and Elevations | 51 | | | |
| | Perimeters | 52 | | | |
| | Area of a Rectangle | 53 | | | |
| | Area of a Triangle | 54 | | | |
| | Area of a Parallelogram | 55 | | | |
| Area of a Trapezium | 56 | | | | |


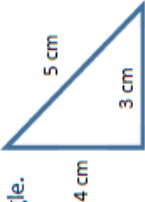

| | | | | | |
|-------------|--------------------------------|----|--|--|--|
| Probability | Frequency Trees | 57 | | | |
| | Listing Outcomes | 58 | | | |
| | Calculating Probabilities | 59 | | | |
| | Mutually Exclusive Events | 60 | | | |
| | Two-Way Tables | 61 | | | |
| | Averages and the Range | 62 | | | |
| | Data - Discrete and Continuous | 63 | | | |
| | Vertical Line Charts | 64 | | | |
| | Frequency Tables and Diagrams | 65 | | | |

Mathswatch Grade Descriptors

Use the grid below to identify the topics you need to work on

| | Grade 1 | Mathswatch clip | Green | Amber | Red |
|-------------|--|-----------------|-------|-------|-----|
| Number | Place Value | 1 | | | |
| | Ordering Integers | 2 | | | |
| | Ordering Decimals | 3 | | | |
| | Reading Scales | 4 | | | |
| | Simple Mathematical Notation | 5 | | | |
| | Interpreting Real-Life Tables - Time | 6a | | | |
| | Interpreting Real-Life Tables - Timetables and Distance Tables | 6b | | | |
| Algebra | Introduction to Algebraic Conventions | 7 | | | |
| | Coordinates | 8 | | | |
| Geometry | Simple Geometric Definitions | 9 | | | |
| | Polygons | 10 | | | |
| | Symmetries | 11 | | | |
| | Tessellations and Congruency - Tessellations | 12a | | | |
| | Tessellations and Congruency - Congruent Shapes | 12b | | | |
| | Names of Angles | 13 | | | |
| Probability | The Probability Scale | 14 | | | |
| | Tally Charts and Bar Charts | 15 | | | |
| | Pictograms | 16 | | | |

A LITTLE BIT OF MATHS EVERY DAY ...

| MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY | SUNDAY |
|--|---|--|---|--|--|---|
| <p>5</p> <p>The hypotenuse of a right-angled triangle is 13 cm long. One of the other sides is 5 cm. How long is the third side?</p> | <p>6</p> <p>I have 6 red pens, 4 blue pens and 3 green pens. What fraction of the pens are green?</p> | <p>7</p> <p>What is the value of: $(\sqrt{3})^2$</p> | <p>1</p> <p>What number is halfway between -4 and 11?</p> | <p>2</p> <p>Convert the below fraction to a % $\frac{3}{8}$</p> | <p>3</p> <p>How many numbers less than 100 can you list that are "one less than a square number"?</p> | <p>4</p>  |
| <p>12</p> <p>Whats the smallest even number that can be used with the following digits: 5 4 8 3</p> | <p>13</p> <p>Simplify $2X^2 + 2X^2$ $m \times m \times m + p + p$</p> | <p>14</p> <p>Estimate $\frac{8.6 \times \sqrt{64.99}}{4.34 \times 4.1}$</p> | <p>8</p> <p>Without a calculator work out $\text{£}2.37 \times 12$</p> | <p>9</p> <p>Without a calculator $\frac{3}{5} \times 420$</p> | <p>10</p> <p>The dimensions of a fish tank are 50 cm by 32 cm by 20 cm.</p> | <p>11</p> <p>The tank is three quarters full with water. How much water is in the tank?</p> |
| <p>19</p> <p>Write 1111 in standard form</p> | <p>20</p> <p>Write $\text{£}16 : 80\text{p} : \text{£}2.40$ in its simplest form</p> | <p>21</p> <p>How many faces does a square based pyramid have?</p> | <p>15</p> <p>True or False? 22 is a factor of 11</p> | <p>16</p> <p>Given 2 gallons = 9 litres how many litres in 19 gallons?</p> | <p>17</p> <p>A sequence of numbers is given as 2 7 12 17 22 Find the nth term of the sequence. Explain how you know 876 is not in the sequence.</p> | <p>18</p> |
| <p>26</p> <p>Write down the value of 32^0:</p> | <p>27</p> <p>Solve $5x - 2 > 6 + 3x$</p> | <p>28</p> <p>What is the value of n? $5^n \times 5^4 = 5^8$</p> | <p>22</p> <p>Calculate: $\frac{3}{4} \div \frac{4}{5}$</p> | <p>23</p> <p>Calculate the area of the triangle. </p> | <p>24</p> <p>$\frac{3}{5}$ of a number is 45. What is $\frac{1}{3}$ of the number?</p> | <p>25</p> |
| <p>26</p> <p>Write down the value of 32^0:</p> | <p>27</p> <p>Solve $5x - 2 > 6 + 3x$</p> | <p>28</p> <p>What is the value of n? $5^n \times 5^4 = 5^8$</p> | <p>29</p> <p>Al, Bob and Cath share some money in the ratio 1:3:5. If Bob received $\text{£}75$ how much did they share?</p> | <p>30</p> <p>A circle with a diameter of 10cm is split into quarters. Calculate the area of one quarter?</p> | <p>31</p> <p>Write 32×10^6 in standard form </p> | <p>REMEMBER: THE BEST WAY TO REVISE MATHS IS TO "DO MATHS"!</p> |

Solutions can be found here



MARCH

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

SUNDAY

APRIL 2018



Solutions can be found here

Share £360 in the ratio 1:3:5



2 The hypotenuse of a right-angled triangle is 13 cm long. One of the other sides is 5 cm. What is the area of the triangle?

9 What is the product of 6 and 7?

16 Write 0.27×10^4 in standard form

23 What do the sum of the interior angles of an octagon add up to?

30 Solve
 $3 - 2(x - 9) = 5x$

3 Write this statement in words:
 $42.31 < 700$

10 Factorise:
 $2a^2b^3 + 8ab^2$
 $a^2 + 6a + 8$

17 Write £6 : 80p : £3.40 in its simplest form

24 Solve
 $6(x + 2) = 21$

4 What is 0.35 as a fraction?

11 Estimate
$$\frac{0.501 \times \sqrt{26.32}}{12 \times 0.48}$$

18 How many faces does a square based pyramid have?

25 What is the value of n ?
 $5^n \times 5^3 = 5^{10}$

5 Without a calculator work out
 $£5.15 \times 14$

12 True or False?
The first 5 prime numbers are 1, 2, 3, 5 and 7

19 Which is closer to 2?
 $\frac{2}{5}$ or $\frac{5}{2}$

26 Can you name two shapes have two lines of symmetry?

6 Without a calculator
 $\frac{2}{5} \times 240$

13 Given
3 gallons = 9 litres
how many gallons in 15 litres?

20 Calculate x

27 What is 35 out of 40 as a percentage?

7 The area of a rectangle is 100 cm². The length of the rectangle is 4 times its width. Work out the width of this rectangle.

14 5% of a number is 31
1% of the same number is 6.2
Work out 13% of the number.


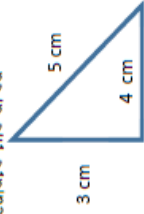

21 $\frac{2}{3}$ of a number is 30.
What is $\frac{5}{9}$ of the number?

28 Work out the difference between the value of the digit 4 and the value of the digit 3 in the following number.
54 307



REMEMBER: THE BEST WAY TO REVISE MATHS IS TO "DO MATHS"!

A LITTLE BIT OF MATHS EVERY DAY ...

| MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY | SUNDAY |
|--|--|--|--|---|--|--------|
| MAY '18 1 A triangle has sides of length 5 cm, 12cm and 13cm. Is it a right angled triangle? | 2 What is the value of the digit "4" in 12.54? | 3 Give an example of a number that has exactly two factors | 4 Without a calculator Work out 172×34 | 5 Rob says that $(x - 4)^2 = x^2 - 16$ Is is correct? Explain your answer  | 6 Joanna has twin brothers. The combined age of Joanna and her brothers is 57. In 3 years time her brothers will be 17. How old will Joanna be in 3 years time? | |
| 7 A triangle has sides of length 5 cm, 12cm and 13cm. Is it a right angled triangle? | 8 What is the area of a circle with a diameter of 6cm? | 9 Write 9:4 in the form 1:n | 10 What is the surface area of a cube with side length of 0.6 metres? | 11 Without a calculator $\frac{4}{9}$ of 360 | 12 Joanna has twin brothers. The combined age of Joanna and her brothers is 57. In 3 years time her brothers will be 17. How old will Joanna be in 3 years time? | |
| 14 Factorise: $2a^4b^3 + 8ab^4 - 4a^3b^2$ $a^2 - a + 12$ | 15 Estimate $\frac{9.68^2 \times \sqrt{16.32}}{12 \times 0.48}$ | 16 The population of a village decreased from 200 people to 120 people. What is the percentage decrease? | 17 The ratio of number of green balls to red balls in a bag is 6:5 What fraction of the balls are red? | 18 The cost of a meal after a 15% discount is applied to the bill is £29.75 What was the price before the discount? | 19 Show that 100 can be written as the sum of a power of two and a square number | 20 |
| 21 Put a pair of brackets in the following to make it correct: $2 \times 7^2 - 2 = 94$ | 22 How many edges does a square based pyramid have? | 23 Which is larger? $\frac{3}{4}$ or $\frac{4}{3}$ | 24 Calculate the area  | 25 How much interest is earned if I invest £2500 in an account that pays 4% compound interest? | 26 | 27 |
| 28 What is the size of an exterior angle of an octagon? | 29 What are the next two terms of the sequence? a b a+b | 30 Simplify $3y^2 \times 4y^3$ | 31 How much interest is earned if I invest £2500 in an account that pays 4% compound interest? | REMEMBER: THE BEST WAY TO REVISE MATHS IS TO "DO MATHS"!  | | |