Foundation tier - student revision checklist

There are three Assessment Objectives in OCR GCSE (9-1) Mathematics. These are shown in the table below.

|  | **Assessment Objectives** | **Weighting**  **Foundation** |
| --- | --- | --- |
| **AO1** | **Use and apply standard techniques**  Learners should be able to:   * accurately recall facts, terminology and definitions * use and interpret notation correctly * accurately carry out routine procedures or set tasks requiring multi-step solutions. | **50%** |
| **AO2** | **Reason, interpret and communicate mathematically**  Learners should be able to:   * make deductions, inferences and draw conclusions from mathematical information * construct chains of reasoning to achieve a given result * interpret and communicate information accurately * present arguments and proofs * assess the validity of an argument and critically evaluate a given way of presenting information.   Where problems require learners to ‘use and apply standard techniques’ or to independently ‘solve problems’ a proportion of those marks should be attributed to the corresponding Assessment Objective. | **25%** |
| **AO3** | **Solve problems within mathematics and in other contexts**  Learners should be able to:   * translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes * make and use connnections between different parts of mathematics * interpret results in the context of the given problem * evaluate methods used and results obtained * evaluate solutions to identify how they may have been affected by assumptions made.   Where problems require users to ‘use and apply standard techniques’ or to ‘reason, interpret and communicate mathematically’ a proportion of those marks should be attributed to the corresponding Assessment Objective. | **25%** |

| **GCSE (9-1) content Ref.** | **Subject content** | **Revision notes** | **Tick when achieved!** |
| --- | --- | --- | --- |
| OCR 1 | Number Operations and Integers | | |
| 1.01 | Calculations with integers | |  |
| 1.01a | Four rules |  |  |
| 1.02 | Whole number theory | |  |
| 1.02a | Definitions and terms |  |  |
| 1.02b | Prime numbers |  |
| 1.02c | Highest Common Factor (HCF) and Lowest Common Multiple (LCM) |  |
| 1.03 | Combining arithmetic operations | |  |
| 1.03a | Priority of operations |  |  |
| **1.04** | Inverse operations | |  |
| 1.04a | Inverse operations |  |  |

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| OCR 2 | Fractions, Decimals and Percentages | | |
| 2.01 | Fractions | |  |
| 2.01a | Equivalent fractions |  |  |
| 2.01b | Calculations with fractions |  |
| 2.01c | Fractions of a quantity |  |
| 2.02 | Decimal fractions | |  |
| 2.02a | Decimals and fractions |  |  |
| 2.02b | Addition, subtraction and multiplication of decimals |  |
| 2.02c | Division of decimals |  |
| 2.03 | Percentages | |  |
| 2.03a | Percentage conversions |  |  |
| 2.03b | Percentage calculations |  |
| 2.03c | Percentage change |  |
| 2.04 | Ordering fractions, decimals and percentages | |  |
| 2.04a | Ordinality |  |  |
| 2.04b | Symbols |  |

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| OCR 3 | Indices and Surds | | |
| 3.01 | Powers and roots | |  |
| 3.01a | Index notation |  |  |
| 3.01b | Calculation and estimation of powers and roots |  |
| 3.01c | Laws of indices |  |
| 3.02 | Standard form | |  |
| 3.02a | Standard form |  |  |
| 3.02b | Calculations with numbers in standard form |  |
| 3.03 | Exact calculations | |  |
| 3.03a | Exact calculations |  |  |

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| OCR 4 | Approximation and Estimation | | |
| 4.01 | Approximation and estimation | |  |
| 4.01a | Rounding |  |  |
| 4.01b | Estimation |  |
| 4.01c | Upper and lower bounds |  |

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| OCR 5 | Ratio, Proportion and Rates of Change | | |
| 5.01 | Calculations with ratio | |  |
| 5.01a | Equivalent ratios |  |  |
| 5.01b | Division in a given ratio |  |
| 5.01c | Ratios and fractions |  |
| 5.01d | Solve ratio and proportion problems |  |
| 5.02 | Direct and inverse proportion | |  |
| 5.02a | Direct proportion |  |  |
| 5.02b | Inverse proportion |  |
| 5.03 | Discrete growth and decay | |  |
| 5.03a | Growth and decay |  |  |

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| OCR 6 | **Algebra** | | |
| 6.01 | Algebraic expressions | |  |
| 6.01a | Algebraic terminology and proofs |  |  |
| 6.01b | Collecting like terms in sums and differences of terms |  |
| 6.01c | Simplifying products and quotients |  |
| 6.01d | Multiplying out brackets |  |
| 6.01e | Factorising |  |
| 6.02 | Algebraic formulae | |  |
| 6.02a | Formulate algebraic expressions |  |  |
| 6.02b | Substitute numerical values into formulae and expressions |  |
| 6.02c | Change the subject of a formula |  |
| 6.02d | Recall and use standard formulae |  |
| 6.02e | Use kinematics formulae |  |
| 6.03 | Algebraic equations | |  |
| 6.03a | Linear equations in one unknown |  |  |
| 6.03b | Quadratic equations |  |
| 6.03c | Simultaneous equations |  |
| 6.03d | Approximate solutions using a graph |  |
| 6.04 | Algebraic inequalities | |  |
| 6.04a | Inequalities in one variable |  |  |
| 6.05 | Language of functions | |  |
| 6.05a | Functions |  |  |
| 6.06 | Sequences | |  |
| 6.06a | Generate terms of a sequence |  |  |
| 6.06b | Special sequences |  |

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| OCR 7 | Graphs of Equations and Functions | | |
| **7.01** | **Graphs of equations and functions** | | |
| 7.01a | *x-* and *y*-coordinates |  |  |
| 7.01b | Graphs of equations and functions |  |
| 7.01c | Polynomial and reciprocal functions |  |
| 7.02 | Straight line graphs | |  |
| 7.02a | Straight line graphs |  |  |
| 7.02b | Parallel and perpendicular lines |  |
| 7.04 | Interpreting graphs | |  |
| 7.04a | Graphs of real-world contexts |  |  |
| 7.04b | Gradients |  |

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| OCR 8 | Basic Geometry | | |
| 8.01 | Conventions, notation and terms | |  |
| 8.01a | 2D and 3D shapes |  |  |
| 8.01b | Angles |  |
| 8.01c | Polygons |  |
| 8.01d | Polyhedra and other solids |  |
| 8.01e | Diagrams |  |
| 8.01f | Geometrical instruments |  |
| 8.01g | *x*- and *y*-coordinates |  |
| 8.02 | Ruler and compass constructions | |  |
| 8.02a | Perpendicular bisector |  |  |
| 8.02b | Angle bisector |  |
| 8.02c | Perpendicular from a point to a line |  |
| 8.02d | Loci |  |
| 8.03 | Angles | |  |
| 8.03a | Angles at a point |  |  |
| 8.03b | Angles on a line |  |
| 8.03c | Angles between intersecting and parallel lines |  |
| 8.03d | Angles in polygons |  |
| 8.04 | Properties of polygons | |  |
| 8.04a | Properties of a triangle |  |  |
| 8.04b | Properties of quadrilaterals |  |
| 8.04c | Symmetry |  |
| 8.05 | Circles | |  |
| 8.05a | Circle nomenclature |  |  |
| 8.06 | Three-dimensional shapes | |  |
| 8.06a | 3-dimensional solids |  |  |
| 8.06b | Plans and elevations |  |

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| OCR 9 | Congruence and Similarity | | | |
| 9.01 | Plane isometric transformations | |  | |
| 9.01a | Reflection |  |  | |
| 9.01b | Rotation |  | |
| 9.01c | Translation |  | |
| 9.02 | Congruence | |  | |
| 9.02a | Congruent triangles |  |  | |
| 9.02b | Applying congruent triangles |  | |
| 9.03 | Plane vector geometry | |  | |
| 9.03a | Vector arithmetic |  |  | |
| 9.03b | Column vectors |  | |
| 9.04 | Similarity | |  | |
| 9.04a | Similar triangles |  |  | |
| 9.04b | Enlargement |  | |
| 9.04c | Similar shapes |  | |

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| OCR 10 | Mensuration | | |
| 10.01 | **Units and measurement** | | |
| 10.01a | Units of measurement |  |  |
| 10.01b | Compound units |  |
| 10.01c | Maps and scale drawings |  |
| 10.02 | Perimeter calculations | |  |
| 10.02a | Perimeter of rectilinear shapes |  |  |
| 10.02b | Circumference of a circle |  |
| 10.02c | Perimeter of composite shapes |  |
| 10.03 | Area calculations | |  |
| 10.03a | Area of a triangle |  |  |
| 10.03b | Area of a parallelogram |  |
| 10.03c | Area of a trapezium |  |
| 10.03d | Area of a circle |  |
| 10.03e | Area of composite shapes |  |
| 10.04 | Volume and surface area calculations | |  |
| 10.04a | Polyhedra |  |  |
| 10.04b | Cones and spheres |  |
| 10.04c | Pyramids |  |
| 10.05 | **Triangle mensuration** | |  |
| 10.05a | Pythagoras’ theorem |  |  |
| 10.05b | Trigonometry in right-angled triangles |  |
| 10.05c | Exact trigonometric ratios |  |

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| OCR 11 | Probability | | |
| 11.01 | **Basic probability and experiments** | |  |
| 11.01a | The probability scale |  |  |
| 11.01b | Relative frequency |  |
| 11.01c | Relative frequency and probability |  |
| 11.01d | Equally likely outcomes and probability |  |
| 11.02 | Combined events and probability diagrams | |  |
| 11.02a | Sample spaces |  |  |
| 11.02b | Enumeration |  |
| 11.02c | Venn diagrams and sets |  |
| 11.02d | Tree diagrams |  |
| 11.02e | The addition law of probability |  |
| 11.02f | The multiplication law of probability and conditional probability |  |

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| OCR 12 | Statistics | | |
| 12.01 | Sampling | |  |
| 12.01a | Populations and samples |  |  |
| 12.02 | Interpreting and representing data | | |
| 12.02a | Categorical and numerical data |  |  |
| 12.03 | Analysing data | |  |
| 12.03a | Summary statistics |  |  |
| 12.03b | Misrepresenting data |  |
| 12.03c | Bivariate data |  |
| 12.03d | Outliers |  |

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