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| **Minor Award Name** | **Business Calculations** |
| **Minor Award Code** | **4N2279** |
| **Level** | **4** |

**Suggested resources to support delivery:**

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| --- | --- | --- | --- | --- |
| **Theme/Topic** | **Type** | **Relevance** | **Author/Source** | **Web Link** |
| Importance of accurate calculations and record keeping in business | Book | Using Business by Robert Jordan – New Student-friendly textbook introducing common calculations encountered in both personal and business scenarios.  Presents calculations and problems in a clear and logical manner using humour and illustrations to aid understanding.  Positions the concepts of maths and calculations in the real world and demonstrates the importance of maths in everyday life | Robert Jordan | <http://www.gilleducation.ie/business-/business-/using-business-maths> |
| Importance of accurate calculations and record keeping in business | Book | Bookkeeping Manual and Computerised 3rd edition published by Gill Education explains how to record, edit, interpret, analyse data both on a manual system and computerised system. | John Roche | <http://www.gilleducation.ie/accounting-bookkeeping-payroll/accounting-bookkeeping-payroll/bookkeeping-manual--computerised> |
| Demonstrate accuracy of calculation by applying the principal mathematical functions of addition, subtraction, multiplication and division to natural Numbers (N), integers (Z), and real numbers (R) to two places of decimal without the use of electronic media | Book | Active Maths 1Junior Cert Ordinary Level by Michael Keating, Derek Mulvany and James’s O’Loughlin  Natural Numbers - Addition, Subtraction, Multiplication and Division (chapter 2)  Integers – Addition, Subtraction, Multiplication, Division (chapter 4)  Rational Numbers – Addition, Subtraction, Multiplication and Division (chapter 5)  Decimals and Percentages - Place Value, Fractions/Decimals, Rounding, Percentage  (chapter 6)  Inequalities - Graphing and Solving for Natural Numbers, Integers and Real Numbers (chapter 20) | Michael Keating, Derek Mulvany and James ‘Loughlin | <https://www.folens.ie/books/active-maths-1-strands-1-5-2015-book-activity-book-set> |
| Demonstrate accuracy of calculation by applying the principal mathematical functions of addition, subtraction, multiplication and division to natural Numbers (N), integers (Z), and real numbers (R) to two places of decimal without the use of electronic media | website | Looks at rounding off decimals, whole numbers significant digits with exercises to suit all levels. | [www.mathsfun.com](http://www.mathsfun.com) | <https://www.mathsisfun.com/rounding-numbers.html> |
| Use a calculator to perform extended calculations requiring functions such as addition, subtraction, multiplication, division, percent, and the clear key, while following the conventions of precedence of operations | Book | Using Business Maths by Robert Jordan  Demonstrate how to use a calculator accurately to perform extended calculations, as well as how to perform simple calculations without a calculator. | Robert Jordan | <http://www.gilleducation.ie/business-/business-/using-business-maths> |
| Use a calculator to perform extended calculations requiring functions such as addition, subtraction, multiplication, division, percent, and the clear key, while following the conventions of precedence of operations | Book | Real Maths 1 Leaving Cert Foundation Level looks at Calculator functions and Problem-Solving Skills step by step. | Paul Mangan | <https://www.educate.ie/productdisplay/real-maths-1-leaving-certificate-foundation-level> |
| Demonstrate the equivalence between fractions, decimals, and percentages by conversion and ratios as fractional ratios | Book | Active Maths 1 Junior Cert Ordinary Level by Michael Keating, Derek Mulvany and James O’Loughlin  Decimals and Percentages - Place Value, Fractions/Decimals, Rounding, Percentage  (chapter 6) | Michael Keating, Derek Mulvany and James O’Loughlin | <https://www.folens.ie/books/active-maths-1-strands-1-5-2015-book-activity-book-set> |
| Demonstrate the equivalence between fractions, decimals, and percentages by conversion and ratios as fractional ratios | Website | This section of the project maths website contains worksheets in geogebra form which help demonstrate the equivalence between fractions, decimals and percentages. | Project Maths Team 2014 | http://www.projectmaths.ie/geogebra/fractions-decimals-and-percentages/ |
| Use appropriate strategies such as rounding off, places of decimal, significant figures, estimation, percentage error, to give approximations, where numbers are from the set of natural numbers (N) and from the set of Integers(Z) | Book | Arithmetic Chapter 1 Approximation and Percentage Error | Michael Keating, Derek Mulvany and James O’Loughlin | <https://www.folens.ie/books/active-maths-3-2nd-edition-2017-textbook-only> |
| Calculate payslips applying appropriate statutory deductions | Book | Active Maths 3 Leaving Certificate Cert Ordinary Level by Michael Keating, Derek Mulvany and James O’Loughlin  Chapter 1 Income Tax | Michael Keating, Derek Mulvany and James O’Loughlin | <https://www.folens.ie/books/active-maths-3-2nd-edition-2017-textbook-only> |
| Differentiate between simple and compound interest by applying the appropriate given formula to a range of savings and credit options | Book | Using Business Maths by Robert Jordan  Clearly explains percentages. Law of indices, rules of logarithms, simple and compound interest associated with taxes, VAT, net profit and loss and algebra including quadratic equations. | Robert Jordan | <http://www.gilleducation.ie/business-/business-/using-business-maths> |
| Differentiate between simple and compound interest by applying the appropriate given formula to a range of savings and credit options | Book | Active Maths 3 Leaving Certificate Cert Ordinary Level by Michael Keating, Derek Mulvany and James O’Loughlin  Chapter 1 Compound Interest, Loans and Investments | Michael Keating, Derek Mulvany and James O’Loughlin | <https://www.folens.ie/books/active-maths-3-2nd-edition-2017-textbook-only> |
| Differentiate between simple and compound interest by applying the appropriate given formula to a range of savings and credit options | website | Gives definitions of simple and compound interest and allows you to compare calculations for both for a monetary value | Financial Mentor | https://financialmentor.com/calculator/interest-calculator |
| Perform calculations related to personal finance including calculation of insurance premiums, deprecation using fixed instalment and reducing balance methods, calculation of total operational costs from fixed and variable data | Book | Get Started Junior Cycle Business Studies by Matt Hynes including Student Activity Book Chapter 8 Personal Insurance | Matt Hynes | <https://www.folens.ie/books/get-started-textbook-only> |
| Perform calculations related to personal finance including calculation of insurance premiums, deprecation using fixed instalment and reducing balance methods, calculation of total operational costs from fixed and variable data | Book | Active Maths 3 Leaving Certificate Cert Ordinary Level by Michael Keating, Derek Mulvany and James O’Loughlin  Chapter 1 Deprecation | Michael Keating, Derek Mulvany and James O’Loughlin | <https://www.folens.ie/books/active-maths-3-2nd-edition-2017-textbook-only> |
| Solve algebraic equations including linear equations of one variable, simultaneous linear equations of two unknowns, and linear inequalities of one  variable | Book | Active Maths 3 Leaving Certificate Cert Ordinary Level by Michael Keating, Derek Mulvany and James O’Loughlin  Chapter 2 Algebra I include solving linear equations, inequalities, problem solving. | Michael Keating, Derek Mulvany and James O’Loughlin | <https://www.folens.ie/books/active-maths-3-2nd-edition-2017-textbook-only> |
| Solve algebraic equations including linear equations of one variable, simultaneous linear equations of two unknowns, and linear inequalities of one variable | website | Website includes Quadratic Equation Solver, Factorising Quadratics, Completing the Square, Graphing Quadratic Equations, Real World Examples of Quadratics and Derivation of Quadratic Equations. | Mathsisfun.com | <https://www.mathsisfun.com/algebra/quadratic-equation.html> |
| Solve quadratic equations using factors and the quadratic formula | Book | Active Maths 3 Leaving Certificate Ordinary Level by Michael Keating, Derek Mulvany and James O’Loughlin  Chapter 2 Algebra II includes solving quadratic equations by factorising and by formula. | Michael Keating, Derek Mulvany and James O’Loughlin | <https://www.folens.ie/books/active-maths-3-2nd-edition-2017-textbook-only> |
| Present information from data collected from the world wide web or other methods, in graphical and tabular form, including bar charts, pie charts, trend graphs, cumulative frequency curves, histograms and frequency tables. | Book | Active Maths 3 Leaving Certificate Ordinary Level by Michael Keating, Derek Mulvany and James O’Loughlin.  Chapter 13 Statistics I include collecting data, frequency tables, graphing data/histograms. | Michael Keating, Derek Mulvany and James O’Loughlin | <https://www.folens.ie/books/active-maths-3-2nd-edition-2017-textbook-only> |
| Present information from data collected from the world wide web or other methods, in graphical and tabular form, including bar charts, pie charts, trend graphs, cumulative frequency curves, histograms and frequency tables. | website | Categorical data comes from classifying data into categories. To understand categorical data, we often display it in bar graphs, pie graphs, pictographs.  Two-way tables show how individuals are classified in terms of categorical variables.  We use two-way tables to see if there is an association between two variables. | www.khanacadey.org | <https://www.khanacademy.org/math/statistics-probability/displaying-describing-data> |
| Calculate the statistics for measuring averages and dispersion of an array of data, to include calculating the mean, mode and median | Book | Active Maths 3 Leaving Certificate Ordinary Level by Michael Keating, Derek Mulvany and James O’Loughlin.  Chapter 14 Statistics II includes calculating mean, mode, median, measures of variation, normal distribution, Empirical Rule, Margin of Error and Hypothesis Testing. | Michael Keating, Derek Mulvany and James O’Loughlin | <https://www.folens.ie/books/active-maths-3-2nd-edition-2017-textbook-only> |
| Interpret basic statistical charts, graphs and diagram. | Book | Active Maths 3 Leaving Certificate Ordinary Level by Michael Keating, Derek Mulvany and James O’Loughlin.  Chapter 13 Statistics I & Chapter 14 Statistics II | Michael Keating, Derek Mulvany and James O’Loughlin | <https://www.folens.ie/books/active-maths-3-2nd-edition-2017-textbook-only> |
| Discuss ways of improving business performance by reducing costs. | Book | Global Business 3rd Edition by John O’Connor Leaving Certificate Business  Chapter 13 Monitoring a Business – Ratio analysis and how to improve same | John O’Connor | <https://www.folens.ie/books/global-business-3rd-edition> |
| **General** | Book | Business Calculations Euro Edition by Shelagh Hand & Bernard Mulchrone  Practical Exercises at the end of each Chapter including typed examination questions included. Also includes a chapter on Personal Finance. | Shelagh Hand & Bernard Mulchrone | <http://www.gilleducation.ie/business-/business-/business-calculations-euro-edition> |
| **General** | website | Project Maths includes teacher resources of Leaving Certificate: Statistics & Probability, Number, Algebra, Functions, Learn how to use Calculator | www.projectmaths.ie | <http://www.projectmaths.ie/for-teachers/leaving-certificate/> |

**Useful Organisations:**

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| **Name** | **Contact Information** |
| Quality and Qualifications (QQI) – for minor and major award component specifications | <http://www.qqi.ie/> |
| Further Education Support Services (FESS) – for resources and information on CPD | <http://www.fess.ie/> |
| Project Maths Development Team | <http://www.projectmaths.ie/> |

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| **MOOCs (Massive Online Open Courses)** | |
| Free access to online courses  Search regularly for new courses and new start dates | <https://www.mooc-list.com/> |