Level 2
Extended
Mathematics
Certificate

Grade Descriptors

Pearson Edexcel
Level 2 Extended Mathematics Certificate – Grade Descriptors

Below are example grade descriptors for each unit that is in our scheme of work for this qualification. These grade descriptors are not exhaustive and do not cover every possible topic/type of question that could be assessed. These are simply a guide to help you assess your student's current progress. There is some overlap between some topics so descriptors may appear in more than one topic area.

Unit 1 - Number

Pass	Merit	Distinction	Distinction*
Learners can • write a negative power in the correct form • simplify a number to a fractional power • simplify a basic surd • simplify expressions with more than one surd by simplifying and collecting like terms • start to simplify a harder quotient in surd form e.g. showing the correct method to rationalise the denominator	Learners can • begin to relate to numbers that are all powers of e.g. 2 or 3 and start to work out the value of an expression in this form • start to simplify a harder quotient in surd form, e.g. showing the correct method to rationalise the denominator and getting the expansion of the numerator or denominator correct	Learners can • begin to relate to numbers that are all powers of e.g. 2 or 3 and make a good start to working out the value of an expression in this form • simplify a harder quotient in surd form, e.g. showing the correct method to rationalise the denominator and getting the expansion of the numerator and denominator correct	Learners can • relate to numbers that are all powers of e.g. 2 or 3 and make a good attempt at working out the value of an expression in this form

Unit 2 - Algebraic manipulation

Pass	Merit	Distinction	Distinction*
Learners can • expand a pair of brackets correctly • identify the correct row from Pascal's Triangle and start an expansion • factorise a quadratic • factorise the difference of two squares • start to use the factor theorem by choosing the correct value of x	Learners can • fully expand and simplify a cubic given Pascal's triangle. • correctly substitute values for expanding a polynomial (higher order than a cubic) with the help of Pascal's triangle. • understand the need to complete the square for a maximum/minimum and start to complete the square • use the factor theorem with the correct value to get to the correct outcome (zero) and write a suitable conclusion	Learners can • correctly substitute values for expanding a polynomial (higher order than a cubic) with the help of Pascal's triangle and evaluate some terms correctly • understand the need to complete the square for a maximum/minimum and complete the square	Learners can • correctly substitute values for expanding a polynomial (higher order than a cubic) with the help of Pascal's triangle and evaluate all terms correctly • start the process of polynomial division or use inspection to factorise a cubic

Unit 3 - Graphs

Pass	Merit	Distinction	Distinction*
Learners can • find the gradient of a perpendicular line and the equation given the coordinate of the *y*-intercept • start to look at a problem with coordinate grids e.g. finding coordinates with missing values using substitution • draw and recognise the correct general shape of a trigonometric curve	Learners can • apply Pythagoras' Theorem to find the distance between the two coordinate points • correctly draw a trigonometric curve and knows the coordinates at which the graphs cut the x- and y-axes	Learners can • find the distance between two coordinate points and give the answer in correct surd form	

Unit 4 – More graphs

Pass	Merit	Distinction	Distinction*
Learners can • sketch a circle with the correct centre given geometrical information • make a good start when finding unknown values in a general formula for a graph by the correct substitution of coordinate pairs	Learners can • sketch a circle with a correct centre and radius • make a good start when finding unknown values in a general formula for a graph by finding one unknown correctly. • draw/recognise the general shape of exponential graphs • start to use the trapezium rule by finding the area of one trapezium. Learners should be able to determine the end points of the bars, and substitute into the equation to find the subsequent y-values • find the coordinates of a point after a translation • start to understand how functions of transformations of graphs behave	Learners can • find all/most unknown values in a general formula for a graph • draw the shape of an exponential graph and be able to label the y-intercept correctly • correctly substitute into the trapezium rule, but possibly with arithmetic errors • understand how functions of transformations of graphs behave • start to understand how more difficult functions of transformations of graphs behave	Learners can • accurately work out values for a formula for a graph, given coordinates and the general form of the graph • confidently and accurately use the trapezium rule to find the area under a straightforward curve. • understand how more difficult functions of transformations of graphs behave

Unit 5 – Functions

Pass	Merit	Distinction	Distinction*
Learners can • substitute into simple functions	Learners can • find the coordinates of a point after a translation • start to understand how functions of transformations of graphs behave	Learners can • understand how functions of transformations of graphs behave • start to understand how more difficult functions of transformations of graphs behave	Learners can • understand how more difficult functions of transformations of graphs behave

Unit 6 – Equations and inequalities

Pass	Merit	Distinction	Distinction*
Learners can • produce a full description of an inequality, but possibly lacking context (when context is given) • start to explain and show constraints as inequalities in a linear programming situation	Learners can • understand the limitations of a formula e.g. when a formula gives negative result for a height above the ground. • solve a quadratic by factorising • show at least one constraint as an inequality in a linear programming situation	Learners can • start to work with the equation of a circle from given information and understand some of the algebraic manipulation required to solve an equation • form a suitable quadratic equation from a given context, and start the process to solve it • make progress through an equation that includes the trigonometric ratios • make good progress in showing constraints as inequalities in a linear programming situation • show a feasible reason for a linear programming style graph question • correctly read the correct values from the graph when maximising or minimising a possibility (linear programming)	Learners can • work with the equation of a circle from given information and understand the need for mathematical reasoning to get an equation into a form to solve and start to solve the equation • form a suitable quadratic equation from a given context, and start the process to solve, and partially simplify the solution • make reasonable progress through an equation that includes the trigonometric ratios, giving some but maybe not all solutions. • show complete constraints as inequalities and simplify them correctly • accurately read the correct values from the graph when maximising or minimising a possibility (linear programming) and use to calculate the maximum/minimum

Unit 7 – Pythagoras and Trigonometry

Pass	Merit	Distinction	Distinction*
Learners can • know and apply appropriate trigonometric methods to calculate with non-right-angled triangles	Learners can • start a geometric proof e.g. of Pythagoras theorem, by stating theorem confidently	Learners can • make some progress through a proof on Pythagoras' theorem and state appropriate trigonometric ratios • make progress through an equation that includes the trigonometric ratios • start to work with triangles in 3D and can identify when to use the sine and cosine rule with some accuracy	Learners can • Learners should be able to make good progress through a proof on Pythagoras theorem and state appropriate trig ratios • make reasonable progress through an equation that includes the trigonometric ratios, giving some but maybe not all solutions. • work competently in 3D with trigonometry, the cosine rule and the sine rule

Unit 8 – Probability

Pass	Merit	Distinction	Distinction*
Learners can • calculate and interpret probabilities using tree diagrams, Venn diagrams and two-way tables			Learners can • start to work correctly through probability combinations and given probabilities to solve a problem algebraically

Unit 9 – Proof

Pass	Merit	Distinction	Distinction*
Learners can • recognise standard circle theorems • start work on a geometric proof at a very basic level, e.g. connecting a line on a diagram to start to show a small amount of understanding of the proof needed • express integers (or even numbers or odd numbers) algebraically to start a proof. They should also be able to follow the instructions in order to start the proof e.g. adding all the integers or multiplying them.	Learners can • express integers (or even numbers or odd numbers) algebraically to start a proof. They should also be able to make good progress with the proof and following the instruction on what they are aiming to prove • start a geometric proof more confidently e.g. of Pythagoras theorem, by stating theorem confidently	Learners can • work on a geometric proof, showing they understand the basic premise of a proof but are not necessarily able to fully complete it • express integers (or even numbers or odd numbers) algebraically to start a proof. They should also be able to make good progress with the proof and following the instruction on what they are aiming to prove. They make a small error that precludes them from gaining full marks • make good progress through a proof on Pythagoras' theorem and state appropriate trigonometric ratios	Learners can • show good understanding of working with geometric proofs, understanding the need to define angles or sides to help complete the proof • follow an algebraic proof through completely, working accurately and gaining and expressing the result correctly. • Learners should be able to make good progress through a proof on Pythagoras theorem and state appropriate trig ratios

Unit 10 – Vectors

Pass	Merit	Distinction	Distinction*
Learners can • perform simple vector calculations	Learners can • start to work with position vectors within a problem	Learners can • can write some relevant expressions for vectors when given in a problem	Learners can • make some progress with vectors such as forming expressions for equivalent vectors and starts to equate coefficients