4 · Pure Mathematics 4

Pearson Edexcel · International A-Level · Pure Mathematics · Vocabulary in context

Word	Example
Proof by contradiction /pru:f baɪ ˌkɒntrə'dɪkʃn/	**Proof by contradiction** assumes the opposite and finds a problem.
irrational /ɪ'ræʃənl/	The square root of 2 is **irrational** because it cannot be written as a fraction of two integers. 2
Decompose /ˌdi:kəm'pəʊz/	**Decompose** the fraction into partial fractions.
partial fractions /'pɑ:ʃl 'frækʃnz/	Use **partial fractions** to split $1/(x(x+1))$ into $1/x - 1/(x+1)$. $1/(x(x+1))$ $1/x - 1/(x+1)$
repeated factor /rɪ'pi:tɪd 'fæktə/	$(x-1)^2$ is a **repeated factor**. $(x-1)^2$
Improper fractions /ɪm'prɒpə 'frækʃnz/	**Improper fractions** need division before using partial fractions.
Parametric equations /ˌpærə'metrɪk ɪ'kweɪʒnz/	**Parametric equations** give x and y in terms of t. t x y
Cartesian /kɑ:'ti:zɪən/	Turn the parametric equations into a **Cartesian** equation.
rational /'ræʃənl/	A **rational** number can be written as a fraction of two integers, such as 3/4. 3/4
Implicit differentiation /ɪm'plɪsɪt ˌdɪfəˌrenʃɪ'eɪʃn/	**Implicit differentiation** works when y is mixed with x. y x
separable /'sepərəbl/	$dy/dx = xy$ is **separable**. $dy/dx = xy$

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particular solution /pə'tɪkjʊlə sə'lu:ʃn/	Use the starting value to find c and get the **particular solution**. c
Connected rates of change /kə'nektɪd reɪts ɒv tʃeɪndʒ/	**Connected rates of change** use the chain rule.
Substitution /ˌsʌbstɪ'tju:ʃn/	**Substitution** can turn a hard integral into an easy one.
Integration by parts /ˌɪntɪ'greɪʃn baɪ pɑ:ts/	**Integration by parts** helps with products like $x \cdot e^x$. $x \cdot e^x$
volume of revolution /'vɒlju:m ɒv ˌrevə'lu:ʃn/	Find the **volume of revolution** by rotating this region about an axis.
vector /'vektə/	A **vector** describes both size and direction.
magnitude /'mægnɪtju:d/	The **magnitude** of the vector $3i + 4j$ is 5. $3i + 4j$ 5
unit vector /'ju:nɪt 'vektə/	A **unit vector** has a magnitude of 1, such as i or j. 1 i j
parallel /'pærəlel/	**Parallel** lines have equal gradients and never meet.
scalar product /'skeɪlə 'prɒdʌkt/	The **scalar product** of perpendicular vectors is zero.
position vector /pə'zɪʃn 'vektə/	The **position vector** of point A tells you where A is from the origin. A A