3 · Pure Mathematics 3

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

Word	Example
rational expression /'ræʃənl ek'spreʃn/	$(x + 1)/(x - 2)$ is a **rational expression**. $(x + 1)/(x - 2)$
function /'fʌŋkʃn/	A **function** returns a value.
domain /də'meɪn/	Leave zero out of the **domain** when x is on the bottom of a fraction. x
range /reɪndʒ/	The **range** of $f(x) = x^2$ is all values greater than or equal to zero. $f(x) = x^2$
composition /ˌkɒmpə'zɪʃn/	The **composition** fg(x) means apply g, then f. fg(x) g f
inverse function /ɪn'vɜːs 'fʌŋkʃn/	The **inverse function** undoes the original function.
modulus /'mɒdjʊləs/	The **modulus** $\|x\|$ is the size of x without its sign. $\|x\|$ x
combined transformations /kəm'baɪnd trænsfɔː'meɪʃnz/	**Combined transformations** apply two changes to a graph.
reciprocal functions /rɪ'sɪprəkl 'fʌŋkʃnz/	$y = \sec x$ is one of the **reciprocal functions**. $y = \sec x$
asymptote /'æsɪmptəʊt/	The graph of $y = e^x$ has a horizontal **asymptote** at $y = 0$. $y = e^x$ $y = 0$
restricted domain /rɪ'strɪktɪd də'meɪn/	A **restricted domain** makes the function one-to-one.
harmonic form /hɑː'mɒnɪk fɔːm/	Write $3 \sin x + 4 \cos x$ in **harmonic form** as $R \sin(x + \alpha)$. $3 \sin x + 4 \cos x$ $R \sin(x + \alpha)$

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compound angle /'kɒmpaʊnd 'æŋgl/	$\sin(A + B)$ is a **compound angle** formula. $\sin(A + B)$
log plot /lɒg plɒt/	A **log plot** turns an exponential curve into a straight line.
model /'mɒdl/	A **model** uses maths to describe a real situation.
initial value /ɪ'nɪʃl 'væljuː/	The **initial value** is the amount when $t = 0$. $t = 0$
long-run floor /lɒŋ rʌn flɔː/	The **long-run floor** is the value the model levels off at.
product rule /'prɒdʌkt ruːl/	Use the **product rule** to differentiate $x \cdot \sin x$. $x \cdot \sin x$
quotient rule /'kwəʊʃənt ruːl/	Use the **quotient rule** to differentiate $\sin x / x$. $\sin x / x$
chain rule /tʃeɪn ruːl/	Use the **chain rule** for a function inside another function.
implicit differentiation /ɪm'plɪsɪt ˌdɪfəˌrenʃɪ'eɪʃn/	Use **implicit differentiation** when y is not on its own, as in $x^2 + y^2 = 25$. y x^2 $+ y^2 = 25$。
recognition forms /ˌrekəg'nɪʃn fɔːmz/	Learn the **recognition forms**, like $f'(x)/f(x)$, for integration. $f'(x)/f(x)$
double angle /'dʌbl 'æŋgl/	$\sin 2A = 2 \sin A \cos A$ is a **double angle** formula. $\sin 2A = 2 \sin A \cos A$
sign change /saɪn tʃeɪndʒ/	A **sign change** in f(x) shows a root lies between the two values. f(x)
iteration /ˌɪtə'reɪʃn/	A loop is a kind of **iteration**.

Word	Example
• **fixed point** /fikst pɔɪnt/	The iteration settles at a **fixed point**.

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