# 1 · Pure Mathematics 1

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

| Word | Example |
|---|---|
| **calculator** /ˈkælkjʊleɪtə/ | You may use a **calculator** in this paper. |
| **sine rule** /saɪn ruːl/ | Use the **sine rule** to find the missing side. |
| **cosine rule** /ˈkəʊsaɪn ruːl/ | Use the **cosine rule** when you know two sides and the angle between them. |
| **radian** /ˈreɪdɪən/ | One full turn is an angle of $2\pi$ **radians**. $2\pi$ |
| **laws of indices** /lɔːz ɒv ˈɪndɪsiːz/ | The **laws of indices** say $a^2 \times a^3 = a^5$. $a^2 \times a^3 = a^5$ |
| **surd** /sɜːd/ | A **surd** such as $\sqrt{5}$ is a root that cannot be simplified to a whole number. $\sqrt{5}$ |
| **rationalise the denominator** /ˈræʃənəlaɪz ðə dɪˈnɒmɪneɪtə/ | To **rationalise the denominator** of $1/\sqrt{3}$, multiply the top and bottom by $\sqrt{3}$. $1/\sqrt{3}$ $\sqrt{3}$。 |
| **quadratic function** /kwɒˈdrætɪk ˈfʌŋkʃn/ | $y = x^2 - 4x + 3$ is a **quadratic function**. $y = x^2 - 4x + 3$ |
| **discriminant** /dɪˈskrɪmɪnənt/ | A positive **discriminant** gives two distinct real roots. |
| **completing the square** /kəmˈpliːtɪŋ ðə skweə/ | **Completing the square** turns $x^2 + 6x$ into $(x + 3)^2 - 9$. $x^2 + 6x$ $(x + 3)^2 - 9$ |
| **simultaneous equations** /ˌsɪməlˈteɪnɪəs ɪˈkweɪʒnz/ | Solve the **simultaneous equations** to find both x and y. x y |
| **substitution** /ˌsʌbstɪˈtjuːʃn/ | Use **substitution**: put $y = 2x$ into the other equation. $y = 2x$ |



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| **inequality** /ɪniːˈkwɒlɪti/ | $x > 3$ is an **inequality**.<br>$x > 3$ |
| **cubic** /ˈkjuːbɪk/ | $y = x^3$ is a **cubic** graph.<br>$y = x^3$ |
| **reciprocal function** /rɪˈsɪprəkl ˈfʌŋkʃn/ | $y = 1/x$ is a **reciprocal function**.<br>$y = 1/x$ |
| **asymptote** /ˈæsɪmptəʊt/ | The graph of $y = e^x$ has a horizontal **asymptote** at $y = 0$.<br>$y = e^x$ $y = 0$ |
| **transformation** /trænsfɔːˈmeɪʃn/ | This **transformation** moves the graph three units up. |
| **parallel** /ˈpærəlel/ | **Parallel** lines have equal gradients and never meet. |
| **perpendicular** /ˌpɜːpənˈdɪkjʊlə/ | The wall is **perpendicular** to the floor. |
| **ambiguous case** /æmˈbɪgjuːəs keɪs/ | In the **ambiguous case**, the sine rule gives two possible triangles. |
| **arc length** /ɑːk leŋθ/ | Measure the **arc length** along the curved edge. |
| **sector area** /ˈsektə ˈeərɪə/ | The **sector area** is a fraction of the whole circle's area. |
| **derivative** /dɪˈrɪvətɪv/ | Use the **derivative** to find the curve's slope at this point. |
| **gradient of the tangent** /ˈgreɪdɪənt ɒvðə ˈtændʒənt/ | The derivative gives the **gradient of the tangent**. |
| **rate of change** /reɪt ɒv tʃeɪndʒ/ | The **rate of change** is 5 metres per second.<br>5 metres per second |
| **second derivative** /ˈsekənd dɪˈrɪvətɪv/ | The **second derivative** tells us how the gradient changes. |



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| $\sum$ **integration** /ˌɪntɪˈgreɪʃn/ | **Integration** is the reverse of differentiation. |
| $+$ **constant of integration** /ˈkɒnstənt ɒv ˌɪntɪˈgreɪʃn/ | The **constant of integration** c is there because every curve $y = x^2 + c$ has the same gradient 2x. $y = x^2 + c$ 2x c |



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