

PEARSON EDEXCEL IAL · YMA01

Edexcel A Level Maths Formula Sheet

The formulas you must know, because they are not in the formulae booklet.

1 Pure Mathematics 1 (P1)

Not in the formulae booklet: you must know these.

Quadratic formula, for $ax^2 + bx + c = 0$ ($a \neq 0$)	$x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$
Sine rule	$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
Area of a triangle	$\text{Area} = \frac{1}{2} ab \sin C$
Arc length (θ in radians)	$s = r\theta$
Area of a sector (θ in radians)	$A = \frac{1}{2} r^2 \theta$

2 Pure Mathematics 2 (P2)

P1 formulae are also assumed.

Laws of logarithms: product	$\log x + \log y = \log xy$
Laws of logarithms: quotient	$\log x - \log y = \log \frac{x}{y}$
Laws of logarithms: power	$k \log x = \log x^k$
Pythagorean identity	$\sin^2 A + \cos^2 A = 1$
Tangent identity	$\tan \theta = \frac{\sin \theta}{\cos \theta}$
Area under a curve ($y \geq 0$)	$\text{area} = \int_a^b y \, dx$

3 Pure Mathematics 3 (P3)

P1 and P2 formulae are also assumed.

Identity with sec	$\sec^2 A = 1 + \tan^2 A$
Identity with cosec	$\text{cosec}^2 A = 1 + \cot^2 A$
Double angle: sine	$\sin 2A = 2 \sin A \cos A$
Double angle: cosine	$\cos 2A = \cos^2 A - \sin^2 A$
Double angle: tangent	$\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$
Derivatives of $\sin kx$ and $\cos kx$	$\sin kx \rightarrow k \cos kx, \cos kx \rightarrow -k \sin kx$
Derivatives of e^{kx} , $\ln x$ and a^x	$e^{kx} \rightarrow ke^{kx}, \ln x \rightarrow \frac{1}{x}, a^x \rightarrow a^x \ln a$
Product rule	$f(x)g(x) \rightarrow f'(x)g(x) + f(x)g'(x)$
Chain rule	$f(g(x)) \rightarrow f'(g(x))g'(x)$
Integrals of $\cos kx$ and $\sin kx$	$\cos kx \rightarrow \frac{1}{k} \sin kx, \sin kx \rightarrow -\frac{1}{k} \cos kx$
Integrals of e^{kx} , $1/x$ and a^x	$e^{kx} \rightarrow \frac{1}{k} e^{kx}, \frac{1}{x} \rightarrow \ln x , a^x \rightarrow \frac{a^x}{\ln a}$
Integral of $f'(g(x))g'(x)$	$\int f'(g(x))g'(x) \, dx = f(g(x)) + c$

4 Mechanics 1 (M1)

Momentum, impulse and constant acceleration.

Momentum and impulse	$\text{momentum} = mv, \text{ impulse} = mv - mu$
Constant acceleration	$v = u + at, v^2 = u^2 + 2as$
Constant acceleration	$s = ut + \frac{1}{2} at^2, s = vt - \frac{1}{2} at^2$
Constant acceleration	$s = \frac{1}{2} (u + v)t$

Mean	$\bar{x} = \frac{\Sigma x}{n} \text{ or } \frac{\Sigma fx}{\Sigma f}$
Standard deviation	standard deviation = $\sqrt{\text{variance}}$
Interquartile range	$IQR = Q_3 - Q_1$
Complement	$P(A') = 1 - P(A)$
Independent events A and B	$P(A \cap B) = P(A) P(B), P(B A) = P(B)$
Expectation of $aX + b$	$E(aX + b) = aE(X) + b$
Variance of $aX + b$	$\text{Var}(aX + b) = a^2 \text{Var}(X)$

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