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L2-MATHF

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MANA TOHU MĀTAURANGA O AOTEAROA

Level 2 Mathematics, 2008
Level 2 Mathematics CAS, 2008

2.00 pm Monday 24 November 2008

FORMULAE SHEET
for 90284, 90285, 90286, 90287, 90290, 90292, 90806, 90807, 90808

Refer to this sheet to answer the questions in your Question and Answer booklets.

Check that this sheet is printed on the back.

YOU MAY KEEP THIS SHEET AT THE END OF THE EXAMINATION.

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Quadratics

If $ax^2 + bx + c = 0$

then $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

and $\Delta = b^2 - 4ac$

Logarithms

If $y = b^x$ then $x = \log_b y$

$\log_b(xy) = \log_b x + \log_b y$

$\log_b\left(\dfrac{x}{y}\right) = \log_b x - \log_b y$

$\log_b(x^n) = n \log_b x$

If $y = \mathrm{e}^x$ then $x = \log_{\mathrm{e}} y \ (= \ln y)$

Sequences / Series

$t_n = a + (n-1)d$

$S_n = \dfrac{n}{2}\left[2a + (n-1)d\right]$

$t_n = ar^{n-1}$

$S_n = \dfrac{a(1-r^n)}{1-r}, \ r \neq 1$

$S_\infty = \dfrac{a}{1-r}$ for $|r| < 1$

Calculus

$\dfrac{\mathrm{d}}{\mathrm{d}x}(x^n) = nx^{n-1}$

$\int x^n \mathrm{d}x = \dfrac{x^{n+1}}{n+1} + c$

Coordinate Geometry

$y - y_1 = m(x - x_1)$

Statistics

$s = \sqrt{\dfrac{\sum(x - \bar{x})^2}{n}}$

Probability

$Z = \dfrac{X - \mu}{\sigma}$

Trigonometry

$\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

$a^2 = b^2 + c^2 - 2bc \cos A$

$\cos A = \dfrac{b^2 + c^2 - a^2}{2bc}$

Area of triangle $= \frac{1}{2} bc \sin A$

Arc length $= r\theta$

Area of sector $= \frac{1}{2} r^2 \theta$

Area of segment $= \frac{1}{2} r^2 (\theta - \sin\theta)$