MATHEMATICS FOR THE INTERNATIONAL STUDENT MATHEMATICS HL (CORE) EXAM PREPARATION AND PRACTICE GUIDE (as at 10 May 2007)

page 5 **SEQUENCES AND SERIES**

In the compound interest example, r should be $1 + \frac{7}{1200}$

page 13 **STATISTICS AND PROBABILITY**

for a continuous RV $\quad \mathrm{E}(X) = \mu = \int_{-\infty}^{\infty} x f(x)\, dx$

page 15 **TOPIC 7 - CALCULUS**

In the first example, y should be $\dfrac{(2x+3)^2}{\sqrt{x^2+5}}$

page 17 **EXAMINATION PRACTICE SET 1**

147 c last line should be: $\quad x - z = 2$

page 38 **SOLUTIONS TO TOPIC 5**

72 a last 3 lines should be:

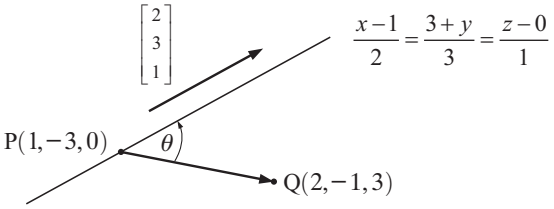
$\Rightarrow \quad \cos\theta = \frac{2}{\sqrt{420}}$ and so $\quad \theta = 84.40^o$

So the angle between the plane and the line is

$(90 - 84.40)^o = 5.60^o$

page 38 **SOLUTIONS TO TOPIC 5**

75 answer shoule be:



P$(1, -3, 0)$ is a point on the line and Q$(2, -1, 3)$ is the given point.

Then $\quad \overrightarrow{\mathrm{PQ}} = \begin{bmatrix} 2-1 \\ -1--3 \\ 3-0 \end{bmatrix} = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$

and if the angle θ is between $\overrightarrow{\mathrm{PQ}}$ and the line then

$$\cos\theta = \frac{\begin{bmatrix}1\\2\\3\end{bmatrix} \bullet \begin{bmatrix}2\\3\\1\end{bmatrix}}{\sqrt{1+4+9}\sqrt{4+9+1}} = \frac{2+6+3}{14} = \tfrac{11}{14}$$

and so $\quad \sin\theta = \sqrt{1 - (\frac{11}{14})^2}$

The required distance is $\quad |\, \overrightarrow{\mathrm{PQ}} \,|\, \sin\theta$

$= \sqrt{14} \times \sqrt{1 - (\frac{11}{14})^2}$

≈ 2.31 units

page 39 **SOLUTIONS TO TOPIC 6**

78 answer should be: $\quad 2\,825\,000$

page 47 **SOLUTIONS TO EXAM PRACTICE SET 2**

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

page 48 **SOLUTIONS TO EXAM PRACTICE SET 2**

166 last 4 lines should be:

$= \left[\arcsin\left(\frac{x}{2}\right)\right]_0^1$

$= \arcsin\left(\frac{1}{2}\right) - \arcsin(0)$

$= \frac{\pi}{6} - 0$

$= \frac{\pi}{6}$

page 49 **SOLUTIONS TO EXAM PRACTICE SET 2**

169 b last 2 lines should be:

$= \frac{177}{14} - \left(\frac{43}{14}\right)^2$

$= \frac{629}{196}$