Question 1

BOARD OF STUDIES
NEW SOUTH WALES

Q1a $\dfrac{5.8^2 - 3.1^3}{3 \times 3.1 \times 5.8} = \dfrac{3.849}{53.940} = 0.071$

Q1b $x^3 + 2 \quad \therefore \dfrac{d}{dx} = 3x^2$

Q1c $x^2 = 5x$

$\dfrac{x^2}{x} = 5$

$x = 5$

Q1d $\displaystyle\int \frac{3}{x}\,dx = \int 3x^{-1}$

$= 3 \ln x + C$

Q1e $3x - \dfrac{2x-5}{2} = 6$

$6x - 2x - 5 = 12$

$4x = 17$

$\therefore x = 4\frac{1}{4}$

BOARD OF STUDIES
NEW SOUTH WALES

Q1f

$x - 2y = 8$ ..... ①

$2x + y = 1$ ..... ②

rearranging ②:

$y = 1 - 2x$ ..... ③

substituting:

$8 = x - 2(1 - 2x)$

$8 = x - 2 + 4x$

$10 = 5x$

$\therefore x = 2$

$y = 1 - 2x$

$y = 1 - 2 \times 2$

$\therefore y = -3$

$\therefore x = 2$ & $y = -3$