

**Term Test A version 1**

(1) [5 points] Use matrix arithmetic to find the area of the following triangle:  
 $P = (-2, -5), Q = (4, -3), R = (1, 3)$ .

(2) [5 points] Use Cramer's rule to find the values of  $x_2$  and  $x_3$ .

$$\begin{array}{rrrrrcl} x_1 & + & 2x_2 & + & 4x_3 & = & 31 \\ 5x_1 & + & x_2 & + & 2x_3 & = & 29 \\ 3x_1 & - & x_2 & + & x_3 & = & 10 \end{array} \quad (1)$$

(3) [5 points] Find the determinant of  $C$ .

$$C = \begin{bmatrix} 1 & -2 & -3 & 0 \\ -1 & 0 & 0 & 3 \\ 0 & 1 & 3 & 0 \\ 1 & 2 & 0 & 2 \end{bmatrix} \quad (2)$$

(4) [5 points] Find the product  $AB$ .

$$A = \begin{bmatrix} 3 - 3i & 6 \\ -5i & -4 + 7i \end{bmatrix} \quad B = \begin{bmatrix} -5 - 6i & -4 + 7i \\ -2 + 5i & 7 + 2i \end{bmatrix} \quad (3)$$