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.

$$\begin{array}{rcrcrcl} x_1 & + & 2x_2 & + & 4x_3 & = & 31 \\ 5x_1 & + & x_2 & + & 2x_3 & = & 29 \\ 3x_1 & - & x_2 & + & x_3 & = & 10 \end{array} \tag{1}$$

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

$$C = \begin{bmatrix} 1 & -2 & -3 & 0 \\ -1 & 0 & 0 & 3 \\ 0 & 1 & 3 & 0 \\ 1 & 2 & 0 & 2 \end{bmatrix} \tag{2}$$

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

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