

Joshua Ogoso Asare 2111739

②

$$\text{iii) } \frac{1+i}{1-i} - \underbrace{(1+2i)(2+2i)} + \frac{3-i}{1+i}$$

$$= \frac{1+i}{1-i} - (2 + 4i^2 + 2i + 4i) + \frac{3-i}{1+i}$$

$$= \frac{1+i}{1-i} - (2 + 0i + 6i) + \frac{3-i}{1+i}$$

$$= \frac{1+i}{1-i} + \frac{3-i}{1+i} + 2 - 6i$$

$$\text{th } \frac{1+i}{1-i} \cdot \frac{1+i}{1+i} = \frac{1+i^2-2i}{1-i^2-i+i} = \frac{-2i}{2} = -i$$

$$= -i + \frac{3-i}{1+i} + 2 - 6i$$

$$= \frac{3-i}{1+i} + 2 - 5i$$

$$\left(\frac{3-i}{1+i} \cdot \frac{1-i}{1-i} = \frac{3+i^2-3i-i}{1-i^2-i+i} = \frac{2-4i}{2} = 1-2i \right)$$

$$= 1-2i + 2-5i$$

$$= \underline{\underline{3-7i}}$$