

$$3ii) \quad \frac{1+i}{1-i} - (1+2i)(2+2i) + \frac{3-i}{1+i}$$

$$\rightarrow \frac{1+i}{1-i} \times \frac{1+i}{1+i} = \frac{1+2i+i^2}{1-i^2} = \frac{2i}{2} = i$$

$$\rightarrow \frac{3-i}{1+i} \times \frac{1-i}{1-i} = \frac{3-4i+i^2}{1-i^2} = \frac{2-4i}{2} = -4i$$

$$\rightarrow (-1+2i)(2+2i)$$

$$= -2 - 2i + 4i + 4i^2$$

$$= -2 + 2i + 4(-1)$$

$$= -6 + 2i$$

$$i - 6 + 2i - 4i$$

$$= -i - 6 = -6 - i$$