

$$3a) \frac{3}{(1+i)(2+i)}$$

$$\frac{3}{1+3i} \times \frac{1-3i}{1-3i}$$

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

$$= \frac{3(1-3i)}{10}$$

$$= \frac{3-9i}{10}$$

$$(1+i)(2+i)$$

$$= 2 + i + 2i + i^2$$

$$= 2 + 3i + 1$$

$$= 1 + 3i$$

$$(1+3i)(1-3i)$$

$$= 1 - 3i + 3i - 9i^2$$

$$= 1 - 9(-1)$$

$$= 10$$