

Complex Numbers - NOTES

1) The number i is an imaginary number where $i = \sqrt{-1}$.

$$\text{Therefore, } i^2 = (\sqrt{-1})^2 = -1.$$

Examples:

2) $5 - 8i - 6i$

$$5 - 14i$$

3) $2 + 4i - 7i$

$$2 - 3i$$

COMBINE
LIKE-TERMS

4) $3 - 2i - (2 + 3i)$

$$3 - 2i - 2 - 3i$$

$$1 - 5i$$

5) $2 + 8i + 4i - 7 - 4i$

$$-5 + 8i$$

6) $2 \cdot 2i$

$$4i$$

7) $7i(-6 + i)$

$$-42i + 7i^2$$

$$-42i + 7(-1)$$

$$-42i - 7$$

$$i^2 = -1$$

FOLLO

8) $(6 + 3i)(-6 + 6i)$

$$-36 + 36i - 18i + 18i^2$$

$$-36 + 18i + 18(-1)$$

$$-36 + 18i - 18$$

$$-54 + 18i$$

9) $(-5 - 7i)^2$

$$(-5 - 7i)(-5 - 7i)$$

$$25 + 35i + 35i + 49i^2$$

$$25 + 70i + 49(-1)$$

$$25 + 70i - 49$$

$$-24 + 70i$$