

CW # 5, 7, 13, 14, 26, 29, 35

$$\begin{aligned}i &= i \quad (\sqrt{-1}) \\i^2 &= -1 \\i^3 &= -i \\i^4 &= 1\end{aligned}$$

6) $(2-i) + (3-\sqrt{3})$ ← $\sqrt{3} \cdot \sqrt{-1}$

$$\underline{2} - \underline{1i} + \underline{3} - \underline{\sqrt{3}i}$$

$$5 - 1 - \sqrt{3}i$$

$$\boxed{5 - (1 + \sqrt{3})i}$$

7) $(i^2 + 3) - (7 + i^3)$

$$(-1 + 3) - (7 - i)$$

$$2 - 7 + i$$

$$\boxed{-5 + i}$$

13) $(7i - 3)(2 + 6i)$

$$14i + 42i^2 - 6 - 18i$$

$$42(-1)$$

$$14i - 42 - 6 - 18i$$

$$\boxed{-48 - 4i}$$

14) $(\sqrt{-4} + i)(6 - 5i)$

$$(\underline{2i} + i)$$

$$3i(6 - 5i)$$

$$18i - 15i^2$$

$$-(15)(-1)$$

$$\boxed{15 + 18i}$$

26) $(1-i)^3 = (1-i)(1-i)(1-i)$

$$\cancel{1-i-i+i}^2 (1-i)$$

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

$$(2)(-1)$$

29) $(2-3i)(2+3i)$

$$4 + \cancel{6i} - \cancel{6i} - 9i^2$$

$$-9(-1)$$

$$4 + 9 = \boxed{13}$$

mult N & D by conjugate of D

$$35) \frac{(2+i)(2+i)}{(2-i)(2+i)} = \frac{4 + 2i + 2i + i^2}{4 + \cancel{2i} - \cancel{2i} - i^2} = \frac{3 + 4i}{4 + 1}$$
$$\frac{3 + 4i}{5}$$

$$= \boxed{\frac{3}{5} + \frac{4}{5}i}$$

↑
 $a + bi$