

$i^2 = -1$
 $1 = i^4$

Whenever you see $i^2 \rightarrow$ sub. $-1!$

1-18: Simplify each operation completely.		
1. i^2 -1	2. i^{31} $31 \div 4 =$ $(i^4)^7 = i^{28} \cdot i^3$ $1 \cdot -i = (-i)$	3. i^{22} $(i^4)^5 = i^{20} \cdot i^2$ $1 \cdot -1 = (-1)$
4. i^{55} $(i^4)^{13} = i^{52} \cdot i^3$ $1 \cdot -i = (-i)$	5. i^{89} $(i^4)^{22} = i^{88} \cdot i$ $1 \cdot i = i$	6. i^{42} $(i^4)^{10} = i^{40} \cdot i^2$ $1 \cdot -1 = (-1)$
7. $\sqrt{-36}$ $\sqrt{-1} \cdot \sqrt{36}$ $i \cdot 6 = (6i)$	8. $\sqrt{-8} \cdot \sqrt{-32}$ $i\sqrt{8} \cdot i\sqrt{32}$ $i^2 \sqrt{4} \cdot 2 \cdot \sqrt{16} \cdot 2$ \downarrow $\star 1 \cdot 2 \cdot 4 \cdot 2 = (-16)$	9. $\sqrt{-50} \cdot \sqrt{8}$ $i\sqrt{25} \cdot 2 \cdot \sqrt{4} \cdot 2$ $5 \quad 2$ $10i \cdot \sqrt{4} = 10i \cdot 2 = (20i)$
10. $(-4 + 2i) + (6 - 3i)$ $+6 - 3i$ $2 - i$	11. $(5 - i) - (3 - 2i)$ $5 - i$ $-3 + 2i$ $2 + i$	12. $(2 + i)(3 - i)$ $3i - 2i + 6 - (-1) = i + 7$
13. $(5 - 2i)(4 - i)$ $-8i$ $-5i$ $20 + 2(-1)$ $20 - 2 = 18$ $18 - 13i$	14. $(4 + 2i)(4 - 2i)$ $16 - 4i^2 + 8i - 8i$ $16 - 4(-1) = 16 + 4$ 20	15. $(-3i)(4i)(-5i)$ $-12i^2 \cdot -5i$ $-12(-1) \cdot -5 \cdot i$ $= 12 \cdot -5i = (-60i)$
16. $(7i)^2(6i)$ $7i \cdot 7i \cdot 6i$ $49i^2 \cdot 6i$ $\star 49 \cdot 6i = (-294i)$	17. $(4 + 3i)(2 - 5i)$ $8 - 15i^2 + 6i - 20i$ $8 - 15(-1) - 14i$ $23 - 14i$	18. $3(2 - 8i) - (6 + 2i)$ $6 - 24i - 6 - 2i$ $= 0$ $(-26i)$