Multiplying Complex Numbers (ALG.CN.05)

Perform each operation and write the result in standard form.

1. $2i \cdot -5i \cdot 3i$ **$30i$**

2. $7i^2 \cdot -i^5 \cdot -2i^4$ **$-14i$**

3. $-3(1-2i)$ **$-3+6i$**

4. $4i(2-3i)$ **$12+8i$**

5. $(-3+7i)(5-2i)$ **$-1+41i$**

6. $(4-9i)(9-4i)$ **$-97i$**

7. $(3-i)(3+i)(3+i)$ **$30+10i$**

8. $2i(3-5i)(6+i)$ **$54+46i$**

9. $(\sqrt{7}-\sqrt{10}i)(\sqrt{7}+\sqrt{10}i)$ **17**

10. $(2\sqrt{5}+3i\sqrt{6})(2\sqrt{5}-3i\sqrt{6})$ **74**

11. $(2+3i)^2$ **$-5+12i$**

12. $(4-5i)^2$ **$-9-40i$**

13. $(-6+i)^3$ **$-198+107i$**

14. $(3-2i)^3$ **$-9-46i$**

15. $(5-2i)^2-(-3+i)^2$ **$13-14i$**

16. $(1+5i)^2-(5-4i)^2$ **$-33+50i$**

Cube each complex number.

17. 2 **8**

18. $-1+\sqrt{3}i$ **8**

19. $-1-\sqrt{3}i$ **8**

20. -3 **-27**

21. $\frac{3}{2}+\frac{3\sqrt{3}}{2}i$ **-27**

22. $\frac{3}{2}-\frac{3\sqrt{3}}{2}i$ **-27**

Raise each complex number to the power of four.

23. 5 **625**

24. -5 **625**

25. $5i$ **625**

26. $-5i$ **625**