Analytical Geometry

COMPLEX NUMBERS & METHODS

Simplify each of the following.

1. i^{201}
2. i^{3}
3. i^{1371}
4. i^{5413}

5. $\sqrt{-24}$
6. $\sqrt{-4}$
7. $\sqrt{-3}$
8. $\frac{1}{i}$

9. $3–6i + 7i–11i$
10. $(3–6i)–(7i–11i)$
11. $3–6i^{5} + 7i^{-6} –11i^{-7}$
12. $\frac{i^{6}i^{-17}}{i^{-13}}$

13. $(4i)(3i^{12})(6i^{3})$
14. $(4i)(3i + 6i^{3})$
15. $(-4i)(8 – 6i^{5})$
16. $\frac{140i+56}{8}$

17. $\frac{4+5i}{2-3i}$
18. $\frac{6-8i}{1+i}$
19. $\frac{4+5i}{9-i}$
20. $\frac{7+3i}{7-3i}$

21. $(3+5i)(2–3i)$
22. $(1+i)(1–i)$
23. $(3+5i)(2–3i)$
24. $(3+8i)(2–7i)$

Using the same box method or FOIL, find each of the following.

25. $(3+5x)(2–3x)$
26. $(13–8x)(7–3x)$
27. $(7+x)(2+9x)$
28. $(8+5x)(12–11x)$

29. $(3+5x)(3–5x)$
30. $(13–x)(13+x)$
31. $(7–2x)(7+2x)$
32. $(8–5x)(8+5x)$

Looking at 29 – 32, can you write a rule for multiplication?