

Operations with Complex Numbers- Answers

1. 1 2. -1 3. -i 4. 1 5. i 6. -15i 7. 16+i 8. -5
9. 32+8i 10. 2i 11. $2i\sqrt{3}$ 12. 10-i 13. $3i\sqrt{2}$ 14. -i 15. ~~5i~~
-125i 16. 14
17. 10-2i 18. -10+20i 19. 18-21i 20. 74 21. -5+12i 22. 11+14i
23. 15+18i 24. -90-148i 25. $x = -1 \pm i$ 26. $x = -\frac{1}{2} \pm \frac{i\sqrt{3}}{2}$ 27. $x = 9 \pm 2i$
28. $x = \pm 5i\sqrt{3}$

selected answers

* $i = \sqrt{-1}$ & $i^2 = -1$

$$5. i^9 = i^8 \cdot i^1 = (i^2)^4 \cdot i^1$$

$$= (-1)^4 \cdot i^1 = i^1 = \boxed{i}$$

$$7. 7+i+9 = \boxed{16+i}$$

* can only combine #'s

$$15. (5i)^3 = 5^3 i^3 = 125i^3$$

$$= \boxed{-125i}$$

$$19. (3-6i)(4+i)$$

$$12-24i+3i-6i^2$$

$$12-21i-6(-1)$$

$$12-21i+6$$

$$\boxed{18-21i}$$