Complex Numbers

Name_____ **Date**_____

Simplify.

1. $\sqrt{-49}$ 2. $\sqrt{-24}$ 3. $\sqrt{-144}$ 4. $\sqrt{-50}$ 5. $\sqrt{-125}$

Write each expression in standard form.

6. i^2 7. i^{14} 8. i^7 9. i^{23}

10. i^{71} 11. i^{204} 12. i^{167} 13. i^{312}

Simplify each expression.

14. (5 – 6i) + (7 – 2i) 15. (2 – 4i) + (3 + 8i) 16. (3 + 5i) – (3 – 5i)

17. (4 – 3i) – (3 – 4i) 18. $(3 + i^2) + i^4$ 19. $(2 + i) + (i^4 + i^3)$

20. $(5 + i^3) - (3 - i^3)$ 21. $(i^5 + 5) + (i^{16} - 2)$ 22. $(2 - 3i) - 4 + i^{48}$

23. $(8 + i^{35}) - i^6$ 24. (2 + 3i)+ (2 – 3i) – 4 + 1

25. Which has the same value as $-i^5 + i^3$?

A. –2i B. – 2 C. 2 D. 2i

26. Let r = (4 + i) and s =(1 – i). What is the value of r – s?

A. 3 B. 3 – 0i C. 3 + 2i D. $3 + i^2$

27. Which of the following is **not** a real number?

A. 6 B. $\sqrt{-36}$ C. $\sqrt{6}$ D. $6i^2$