SM2H

Name:_____ Period:_____

2.5 Complex Numbers 2019-2020

Express in terms of *i*.

1. $\sqrt{-81}$
2. $\sqrt{-45}$
3. $\sqrt{-70}$
4. $-\sqrt{-121}$
5. $-\sqrt{-72}$
6. $3\sqrt{-49}$
7. $-2\sqrt{-28}$
8. $-5\sqrt{-48}$

Add or subtract and simplify. If the answer is complex, write it in the form *a* + *bi*.

9. $(3+7i)+(2-4i)$
10. $(-9+2i)-(-4-i)$
11. $-(-6+i)-(7+3i)$
12. $(-5-2i)+(-3+8i)$
13. $3i-(7+10i)$
14. $(-3-17i)-(-2-8i)$

Simplify. If the answer is complex, write it in the form *a* + *bi*.

15. $7i \cdot 3i$
16. $-8i \cdot 9i$
17. $(-2i)(-i)$

18. $3i(7-3i)$

19. $(-5i)(6-i)$

20. $(3+7i)(2+5i)$

21. $(1-7i)(-6+8i)$

22. $(8+6i)^2$

23. $(9-2i)^2$

24. $(5+4i)(5-4i)$

Multiply and simplify. If the answer is complex, write it in the form *a + bi*.

25. $\sqrt{-25}\cdot\sqrt{-4}$

26. $\sqrt{-2}\cdot\sqrt{-32}$

27. $\sqrt{-30}\cdot\sqrt{5}$

28. $\sqrt{-9}\cdot-\sqrt{-44}$

29. $-\sqrt{70}\cdot\sqrt{-10}$

30. $-\sqrt{-63}\cdot-\sqrt{-7}$

Simplify. If the answer is complex, write it in the form *a* + *bi*.

31. $(15+2i)+(-13+8i)$

32. $-2i \cdot 23i$

33. $(4-10i)(-6+7i)$

34. $\sqrt{-12} \cdot -\sqrt{-20}$

35. $(-12-2i)-(3-i)$

36. $\sqrt{-16} \cdot \sqrt{-4}$

37. $(1-i)(-5+14i)$

38. $(3-5i)^2$

39. $i(7-i)$

40. $-5\sqrt{-18}$

41. i^{11}

42. i^{32}

43. i^{18}

44. i^{25}

45. $\sqrt{72}$

46. $5\sqrt{3}+\sqrt{12}$

47. $\sqrt[3]{24x^{28}}$

48. $\left(\dfrac{10x^{3}y^{-7}}{25x^{-8}y^{11}}\right)^{0}$

Write an equivalent expression using radical notation an simplify is possible.

49. $x^{5/3}$

50. $\left(b^{2}\right)^{3/5}$

51. $3x^{1/7}$

Write an equivalent expression using rational exponents.

52. $\sqrt[5]{x^{4}}$

53. $\sqrt[4]{10v}$

54. $-5\sqrt{z^{2}}$