**Algebra 2 Imaginary \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Operations with Complex Numbers / Radicals / Square Root Method Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_**

**Simplify. No Decimals.**

1.) $\sqrt{-48}$ 2.) $\sqrt{80}$ 3.) $\sqrt{-200}$ 4.) $\sqrt{50}$

5.) $\sqrt{-20}$ 6.) $\sqrt{-72}$ 7.) $\sqrt{-52}$ 8.) $\sqrt{-25}$

9.) $\sqrt{200}$ 10.) $\sqrt{-32}$ 11.) $\sqrt{-125}$ 12.) $\sqrt{-16}$

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**Simplify.**

13.) $\left(7i\right)+\left(-3+5i\right)-\left(-3+8i\right)$ 14.) $\left(-2+7i\right)-8-\left(3-6i\right)$

15.) $\left(8+8i\right)\left(-1-8i\right)$ 16.) $\left(2-6i\right)\left(-4+8i\right)$

17.) $\left(2+8i\right)\left(-1-7i\right)\left(-3-i\right)$ 18.) $\left(-6-i\right)\left(2+7i\right)\left(-8+i\right)$

19.) $\left(2i\right)\left(-5i\right)$ 20.) $\left(-3i\right)\left(-7i\right)\left(5i\right)$

21.) $\frac{2+3i}{2i}$ 22.) $\frac{3-4i}{5+2i}$

**Solve each quadratic using the Square Root Method. Simplify any radical answers.**

23.) $2x^{2}-7=33$ 24.) $-4x^{2}=64$

25.) $\left(m-5\right)^{2}=25$ 26.) $3\left(t-2\right)^{2}=36$

27.) $-3\left(x-8\right)^{2}+11=38$ 28.) $10-6\left(m+4\right)^{2}=106$

29.) $5\left(c+3\right)^{2}-20=-120$ 30.) $14-4\left(k-7\right)^{2}=-86$

**Review. Factor each polynomial completely.**

31.) $3x^{2}-11x+10$ 32.) $3x^{2}+29x-10$

33.) $27m^{3}-125$ 34.) $16c^{4}-81$

35.) $24x^{3}-18x^{2}-30x$ 36.) $8t^{4}+10t^{2}-3$

37.) $4m^{2}-8m-5$ 38.) $n^{4}-1$