**Assignment: Imaginary and Complex Numbers**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_

**Simplify. Show Work!**

1. $\sqrt{-169}$ 11. $12i\left(4i\right)\left(3i\right)\left(-2i\right)$

2. $\sqrt{-32}$ 12. $\left(2+5i\right)+\left(-2+5i\right)$

3. $\sqrt{-90x^{8}}$ 13. $\left(1-3i\right)-\left(7+i\right)$

4. $\sqrt{-48x^{5}y^{7}}$ 14. $\left(-1-8i\right)+\left(4+3i\right)$

5. $3\sqrt{-44x^{11}}$ 15. $6\left(18-9i\right)$

6. $\left(4i\right)\left(3i\right)$ 16. $-12i\left(-1+4i\right)$

7. $\left(-4i\right)\left(-5i\right)\left(3i\right)$ 17. $\left(9+i\right)\left(4-i\right)$

8. $\left(2i\right)^{2}$ 18. $\left(6+8i\right)\left(5-4i\right)$

9. $3i∙6i^{2}$ 19. $\left(3+i\right)^{2}$

10. $\left(3i\right)^{2}\left(5i\right)^{2}$ 20. $\left(5+7i\right)\left(5-7i\right)$

21. Which is equivalent to $\sqrt{-16}$ ?

A $i\sqrt{8}$ B $2i\sqrt{2}$ C $4i$ D $8i$

22. If $\left(a+bi\right)+\left(2-i\right)=3+i$, find the value of $b$.

F 2 G 0 H 1 J $\frac{1}{2}$

23. Find the product: $\left(2-3i\right)\left(1-4i\right)$

A. $-10-11i$ B. $2\left(1-6i\right)$ C. $2-7i$ D. $14-11i$

24. Find the difference: $\left(11+7i\right)-\left(6+i\right)$

F. $5-6i$ G. $5+6i$ H. $5+8i$ J. $17-6i$