Adv Alg 2 **Chapter 4 Review Worksheet**

NO GRAPHING CALCULATORS!!

For 1-7, simplify. Write answers in standard complex form.

1. i^{73}

2. $(15 + 2i) + (-8 + 7i)$

3. $(17 - 11i) - (12 - 2i)$

4. $(4 - 2i)(8 + 5i)$

5. $\frac{5-4i}{2i}$

6. $\frac{8}{3+i}$

7. $\frac{9-3i}{4+5i}$

For 8-15, factor completely.

8. $81y^2 - 49$

9. $8cw - 12cy - 6wx + 9xy$

10. $12a^2 - 5a - 3$

11. $6z^2 + 54$

12. $27x^3 - 8y^3$

13. $c^3 - 5c^2 - 6c$

14. $8x^2 - 10xy - 3y^2$

15. $4 + 108x^3$

For 16-17, find the value of the discriminant. (Show your work!) Then complete the table by checking only those descriptions indicated by that discriminant value.

Equation	Discriminant Value	One double root	Two real rational roots	Two real irrat. roots	Two imag. roots
16. $2x^2 = 3(x-1)$	Work:				
17. $(3x-1)^2 = 0$	Work:				

Directions: In 18-20, solve by the method stated. Leave in simplified radical form.

18. Solve by **completing the square**.

$3x^2 + 12x = 12$

Solution:_____

19. Solve by **quadratic formula**.

$2x^2 = 10x - 16$

Solution:_____

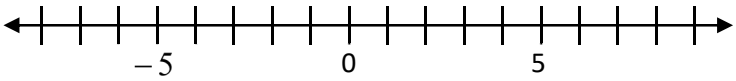
20. Solve by **factoring and zero product property**.

$4x^2 - 9 = 9x$

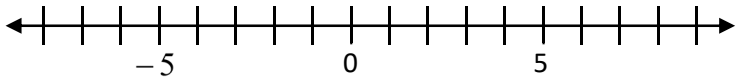
Solution:_____

Directions: For 21 and 22, solve the quadratic inequality. Show <u>all</u> work!

21. $x^2 + x < 20$



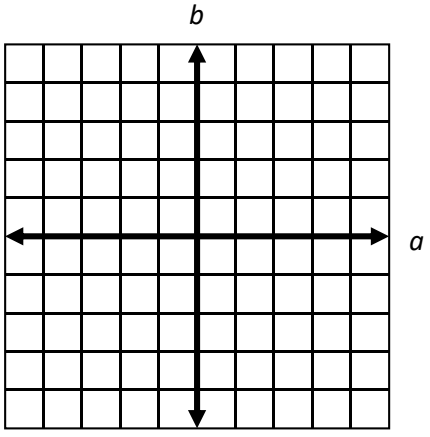
22. $2x^2 - 6x \geq 36$



Directions: In 23, solve the system of quadratics using <u>substitution</u>.

23. $y = 3x^2 + x - 8$
$y = 2x^2 + 3x + 7$

24. **Graph** $2 - 5i$



25. **Find** $|2 - 5i|$