

Key

Adv Alg 2

Chapter 4 Review Worksheet NO GRAPHING CALCULATORS!!

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

1. i^{73} i

2. $(15 + 2i) + (-8 + 7i)$
 $7 + 9i$

3. $(17 - 11i) - (12 - 2i)$
 $5 - 9i$

4. $(4 - 2i)(8 + 5i)$
 $42 + 4i$

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

6. $\frac{8}{3+i}$
 $12/5 - 4/5 i$

7. $\frac{9-3i}{4+5i}$
 $21/41 - 57/41i$

For 8-15, factor completely.

8. $81y^2 - 49$ $(9y + 7)(9y - 7)$

9. $8cw - 12cy - 6wx + 9xy$
 $(2w-3y)(4c-3x)$

10. $12a^2 - 5a - 3$ $(4a-3)(3a + 1)$

11. $6z^2 + 54$ $6(z^2+9)$

12. $27x^3 - 8y^3$
 $(3x - 2y)(9x^2+6xy+4y^2)$

13. $c^3 - 5c^2 - 6c$
 $c(c-6)(c+1)$

14. $8x^2 - 10xy - 3y^2$
 $(4x+y)(2x-3y)$

15. $4 + 108x^3$
 $4(1+3x)(1-3x+9x^2)$

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.

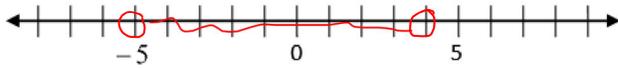
| Equation | Discriminant Value | One double root | Two real rational roots | Two real irrat. roots | Two imag. roots |
|------------------------|--------------------|-----------------|-------------------------|-----------------------|-----------------|
| 16. $2x^2 = 3(x-1)$ | Work: -15 | | | | X |
| 17. $(3x-1)^2 = 0$ | Work: 0 | X | | | |

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

| | | |
|--|---|---|
| 18. Solve by <u>completing the square</u> . $3x^2 + 12x = 12$ Solution: $x = -2 \pm 2\sqrt{2}$ | 19. Solve by <u>quadratic formula</u> . $2x^2 = 10x - 16$ Solution: $x = 5/2 \pm \sqrt{7}/2i$ | 20. Solve by <u>factoring and zero product property</u> . $4x^2 - 9 = 9x$ Solution: $x = -3/4$ or 3 |
|--|---|---|

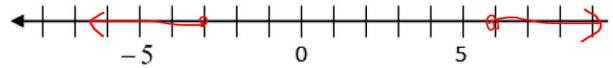
Directions: For 21 and 22, solve the quadratic inequality. Show all work!

21. $x^2 + x < 20$



$-5 < x < 4$

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



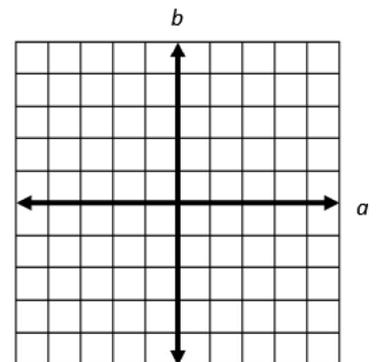
$x \leq -3$ or $x \geq 6$

Directions: In 23, solve the system of quadratics using substitution.

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

$(-3, 16), (5, 72)$

24. Graph $2 - 5i$



25. Find $|2 - 5i|$

$\sqrt{29}$