Name _____   Date _____
Mr. Schlansky   Pre Calculus

Unit 3 Quadratics Review Sheet

Solve the following quadratic equations for all values of x in simplest radical form or simplest *a+bi* form if necessary.

1. $5x^2 + 60 = 0$ 2. $-3x^2 - 50 = 130$

3. $a^2 - 8a = 20$ 4. $2x^2 + 3x = 5$

Solve the following using *both* the quadratic formula and completing the square methods

8. $x^2 - 6x + 4 = 0$ 8. $4x^2 + 12x = 7$

Solve the following polynomial equations for all values of x in simplest radical form or *a+bi* form if necessary

9. $x^4 - 4x^2 - 32 = 0$

10. $x^3 - 3x^2 - 5x + 15 = 0$

Solve the following inequalities and graph on a number line

11. $x^2 \leq 4x + 12$

12. $3x^2 + 2x \leq 8$

13. $x^4 - 20x^2 < 64$

14. $x^3 + 6x^2 - 25x \leq 150$

15. The nature of the roots of $-2x^2 + x = 6$ are:
1) real, rational, and equal
2) real, rational, and unequal
3) real, irrational, and unequal
4) imaginary

16. The nature of the roots of $2x^2 = 3x + 1$ are:
1) real, rational, and equal
2) real, rational, and unequal
3) real, irrational, and unequal
4) imaginary

17. For what value of k are the roots of $-2x^2 + kx - 6 = 0$ imaginary?
1) 7   2) -7   3) 3.5   4) 9

18. The roots of $x^2 - kx + 7 = 0$ are real when k is equal to:
1) 1   2) -4   3) 10   4) -5

Find the sum and product of the roots of the following equations:

19. $x^2 - 7x = 5$

20. $5x^2 + 3x = 4$

21. $x = -4 \pm \sqrt{2}$

22. $x = 2 \pm 4i$

23. One root of $x^2 + kx + 30 = 0$ is -6. Find the other root.

24. One root of $x^2 - 7x + k = 0$ is 9. Find the other root.