Test Chapter 8 Algebra II Name _____

I. Multiple Choice

_____ 1. Which is equal to $\sqrt[4]{625x^8}$?
(A) $25x^4$ (B) $5x^4$ (C) $5x^2$ (D) $156.25x^2$

_____ 2. Which is equal to $1000^{\frac{-1}{3}}$?
(A) $\frac{1}{10}$ (B) 10 C. –10 D. $-\frac{1}{10}$

_____ 3. Which is equal to $8i^{36}$?

(A) 8 (B) -8 (C) 8i (D) -8i

_____ 4. Which is the ***simplest radical form of*** $\sqrt[9]{10^3}$?

(A) $\sqrt[9]{1000}$ (B) $10\sqrt[6]{10}$ (C) $\sqrt[3]{10}$ (D) 3.33

II. Free Response SHOW ALL WORK on your own paper!

5 – 7. Solve each radical equation

5. $\sqrt{x} = 6$

6. $\sqrt{x-3} - 2 = 1$

7. $\sqrt{x} + 1 = \sqrt{x+9}$

8 – 9. Solve the equations over the complex numbers

8. $x^2 + 3x + 4 = 0$

9. $x^2 + 4 = 0$

10 – 12. Write each expression in simplest radical form

10. $\sqrt{\frac{4}{5}}$

11. $\sqrt{300x^2}$

12. $\sqrt{75}$

13 – 15. Identify the roots of the following equations. Do NOT solve!
Use one of the following three choices for your answers:

A) 2 complex roots
B) 2 unequal real roots
C) 1 double real root

13. $x^2 - 2x - 8 = 0$

14. $4x^2 + 5x + 3 = 0$

15. $x^2 + 6x = -9$

16 – 25. Simplify

16. $3\sqrt{5} + 2\sqrt{5}$

17. $\sqrt[3]{24} + \sqrt[3]{81}$

18. $\sqrt[6]{64x^{12}}$

19. (3 + i) + (7 – i)

20. $\dfrac{3}{1-\sqrt{2}}$

21. (6 – 2i) – (3 – 3i)

22. $\sqrt{-600}$

23. (2 – 5i) (2 + 3i)

24. i^{33}

25. $\dfrac{8}{2+i}$

Extra Credit:

Simplify: $\sqrt{4x^2 + 12x + 9}$