Mth 098 – Intermediate Algebra – Practice Exam 6

NOTE: This exam should not be taken as a complete list of possible problems. It is merely intended to be an example of the difficulty level of the regular exam. To best utilize it as a *practice* exam, try to complete the exam without notes or distractions. Try to emulate the classroom environment as much as possible.

Evaluate each expression.

1. $\sqrt[3]{64}$

2. $\sqrt{(-23)^2}$

3. $\sqrt[3]{\frac{8}{27}}$

- 4. $125^{-\frac{1}{3}}$
- 5. $8^{\frac{4}{3}}$
- 6. $(-81)^{\frac{3}{4}}$
- 7. Use absolute value to simplify $\sqrt{a^2 + 8a + 16}$. Assume *a* is any real number.

Simplify each expression. Unless specified otherwise, assume that all variables and radicands represent positive real numbers. Your answer should not include negative exponents.

8. $x^{\frac{2}{3}} \cdot x^{\frac{5}{6}}$

9. $\sqrt{50}$

10. $\sqrt[3]{9} \cdot \sqrt[3]{6}$

11. $\sqrt[3]{16a^7b^9}$

12. $\frac{\sqrt[3]{3}}{\sqrt[3]{81}}$

13. $\sqrt{18} + 3\sqrt{8}$

14. $\sqrt{3}\left(\sqrt{12}+\sqrt{6}\right)$

15.
$$\frac{3}{\sqrt{3}}$$

16.
$$\frac{4}{\sqrt[4]{2}}$$

$$17. \ \frac{2}{\sqrt{3} + \sqrt{2}}$$

Solve each equation. If the equation has no real solutions, so state. 18. $\sqrt{x-3} = -2$

19. $\sqrt[4]{3x+1} = 2$

20. $\sqrt{2x+3} - 5 = 0$

Perform the indicated operation. Write your final answer in the form a + bi. 21. $\sqrt{-9} + \sqrt{-16}$

22. $\sqrt{-3} \cdot \sqrt{-12}$

23. (3+i)(1-2i)

24. $\frac{4}{3i}$

25. $\frac{3}{2+i}$