2.1 Practice Set

1. What is a radicand? What is an index? Give an example.
2. When simplifying radicands which contain variables with exponents, what is the quickest method to simplify and why does this method work?
3. How are the square root and the cube root of -8 different?
4. How are even roots different than odd roots when the radicand is negative?
5. When do we need to use absolute value symbols when simplifying radicals and why?

Simplify each of the following.

6. $\sqrt{9a^6}$
7. $\sqrt[3]{-8x^{15}}$
8. $\sqrt[4]{-81}$
9. $\sqrt{(-3)^2}$
10. $\sqrt[3]{(-8)^3}$
11. $\sqrt{36y^2}$
12. $\sqrt{(x-5)^2}$
13. $\sqrt{x^2+8x+16}$

14. $\sqrt{25x^{12}y^{18}}$

15. $\sqrt[3]{-27a^9b^{12}}$

Simplify each of the following. Assume that all variables represent positive real numbers.

16. $\sqrt[5]{-243x^{15}y^{30}z^5}$

17. $\sqrt{16x^9}$

18. $\sqrt[3]{128x^4}$

19. $\sqrt[5]{32a^{20}b^{11}}$

20. $\sqrt{64r^8s^{13}}$

21. $\sqrt[3]{-64x^{15}y^{30}}$

22. $-\sqrt{396a^{16}b^{12}c^5}$

23. $\sqrt{162x^9y^{17}}$

24. $\sqrt[3]{486t^{81}}$

25. $\sqrt{32r^{17}s^{14}t^2}$

Distributed Practice Problems

Factor each of the following polynomials completely.

26. $3x^2 - 21x + 36$

27. $27r^3s^3 + 64t^6$

28. $2xy + 16x - 3y - 24$

Solve each of the following equations for the indicated variable.

29. $x^2(9x + 15) = 14x$

30. $\frac{x+2}{x^2+6x+5} + \frac{2}{x+5} = \frac{3}{2x+2}$