EXTRA PRACTICE — Exercises

Unit VII – Relations of Rational Number Degree
Part B – Operations with Radical Expressions
Lesson 5 – Radical Expressions in Polynomials

Simplify each of the following, being sure there are no fractions left under the radical and no radicals are left in the denominator of a fraction.

1. $\sqrt{3}\left(8\sqrt{45} - 3\sqrt{80}\right)$

2. $\left(4\sqrt{2} - 2\sqrt{3}\right)\left(5\sqrt{2} - \sqrt{3}\right)$

3. $\left(4\sqrt{5} + \sqrt{6}\right)\left(3\sqrt{5} - 2\sqrt{6}\right)$

4. $\sqrt[4]{2}\left(\sqrt[4]{32} + \sqrt[4]{48}\right)$

5. $\left(7\sqrt{5} + 3\sqrt{11}\right)^2$

6. $4\sqrt{2}\left(\sqrt{12} - 3\sqrt{2} + 4\sqrt{8}\right)$

7. $\sqrt[5]{2}\left(\sqrt[5]{64} - \sqrt[5]{16}\right)$

8. $\left(3\sqrt{2} - 4\sqrt{6}\right)^2$

9. $\left(4\sqrt{3} + \sqrt{2}\right)\left(2\sqrt{3} - 5\sqrt{2}\right)$

10. $\left(2\sqrt{y} - 3\sqrt{2}\right)\left(4\sqrt{y} - 5\sqrt{2}\right)$

11. $\sqrt[3]{9}\left(3\sqrt[3]{81} - 2\sqrt[3]{54}\right)$

12. $\left(2 - \sqrt{98}\right)\left(3 + \sqrt{18}\right)$

13. $2\sqrt{3}\left(7\sqrt{3} - \sqrt{8} + 2\sqrt{5}\right)$

14. $\left(\sqrt{a} - \sqrt{b}\right)^2$

15. $\left(4\sqrt{x} - 3\sqrt{y}\right)^2$

16. $\left(\sqrt{3x} - \sqrt{5y}\right)\left(2\sqrt{3x} + \sqrt{5y}\right)$

17 $\sqrt{60 + 2\sqrt{3}} \cdot \sqrt{4 - 2\sqrt{3}}$

18. $\left(\sqrt{a} + \sqrt{b}\right)\left(\sqrt{a} + 2\sqrt{b}\right)$

19. $\left(3\sqrt{5} + 2\sqrt{10}\right)\left(2\sqrt{5} + \sqrt{10}\right)$

20. $\sqrt{18 - 2\sqrt{12}} \cdot \sqrt{18 + \sqrt{12}}$

EXTRA PRACTICE — Answer Key

Unit VII – Relations of Rational Number Degree
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Lesson 5 – Radical Expressions in Polynomials

Simplify each of the following, being sure there are no fractions left under the radical and no radicals are left in the denominator of a fraction.

1. $12\sqrt{15}$

2. $46+^{-}14\sqrt{6}$

3. $48-5\sqrt{30}$

4. $2\left(\sqrt{2}+\sqrt[4]{6}\right)$

5. $344+42\sqrt{55}$

6. $8\left(\sqrt{6}+5\right)$

7. $2\left(\sqrt[5]{4}-1\right)$

8. $114+^{-}48\sqrt{3}$

9. $14-18\sqrt{6}$

10. $8y+^{-}22\sqrt{2y}+30$

11. $27-6\sqrt[3]{18}$

12. $^{-}36-15\sqrt{2}$

13. $42+^{-}4\sqrt{6}+4\sqrt{15}$

14. $a-2\sqrt{ab}+b$

15. $16x+^{-}24\sqrt{xy}+9y$

16. $6x-\sqrt{15xy}-5y$

17 $2\sqrt{57-28\sqrt{3}}$

18. $a+3\sqrt{ab}+2b$

19. $50+35\sqrt{2}$

20. $\sqrt{300-36\sqrt{2}}$