Lesson 3.2: Operations with Radicals

Complete the *Practice* below. When you have completed all the questions for *Lesson 3.2 Practice – II* with your best work, mark your work by first comparing your answers to the solutions provided in the *Appendix*. Then, apply the rubric found at the beginning of the *Workbook*.

Practice – II

1. Georgia simplified the expression $5\sqrt{45} - \sqrt{20}$.

$$\begin{aligned} 5\sqrt{45} - \sqrt{20} &= (5-1)\sqrt{45-20} \\ &= 4\sqrt{25} \\ &= 4(5) \\ &= 20 \end{aligned}$$

Explain the error(s) Georgia made, and correct the solution.

2. Simplify the following expressions.

a. $\sqrt{24} - \sqrt{6}$

b. $\sqrt[3]{81x^4} + \sqrt[3]{5} + x\sqrt[3]{192x} - \sqrt[3]{40}$

3. Simplify the following expressions. Where applicable, identify any restrictions on the variables.

a. $3\sqrt{6r} \cdot 4\sqrt{10}$

b. $4\sqrt{5}(2 - 3\sqrt{15})$

4. Simplify the following expressions. Where applicable, identify any restrictions on the variables.

   a. $(2\sqrt{3}+\sqrt{7})(3-\sqrt{21})$

   b. $(5\sqrt{2}-2\sqrt{5m})^2, m \geq 0$

5. Simplify the following expressions.

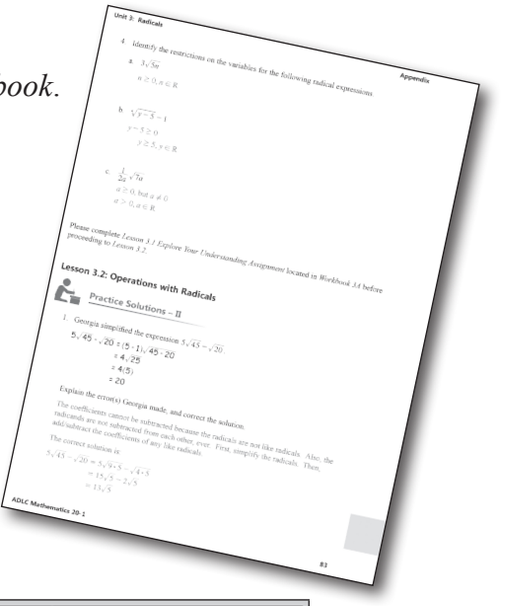
   a. $\dfrac{18\sqrt{35}}{2\sqrt{5}}$

b. $\dfrac{7\sqrt[3]{48x^2}}{21\sqrt[3]{24x}}, x \neq 0$

Mark your work for *Lesson 3.2 Practice – II* using the solutions provided in *Appendix 2: Solutions*. Then, apply the rubric found at the beginning of the *Workbook*.

Transfer your self-assessed mark to the front cover of the *Workbook*.

My self-assessed mark on *Lesson 3.2 Practice – II* is _____.


Unit 3: Radicals

Appendix

4. Identify the restrictions on the variables for the following radical expressions.

a. $3\sqrt{5a}$

$a \geq 0, a \in R$

b. $\sqrt{y-5}-1$

$y-5 \geq 0$

$y \geq 5, y \in R$

c. $\frac{1}{2a}\sqrt{a}$

$a \geq 0$, but $a \neq 0$

$a > 0, a \in R$

Please complete *Lesson 3.1 Explore Your Understanding Assignment* located in *Workbook 3A* before proceeding to *Lesson 3.2*.

Lesson 3.2: Operations with Radicals

Practice Solutions – II

1. Georgia simplified the expression $5\sqrt{45}-\sqrt{20}$

$5\sqrt{45}-\sqrt{20} = (5-1)\sqrt{45-20}$

$= 4\sqrt{25}$

$= 4(5)$

$= 20$

Explain the error(s) Georgia made, and correct the solution.

The coefficients cannot be subtracted because the radicals are not like radicals. Also, the radicands are not subtracted from each other, ever. First, simplify the radicals. Then, add/subtract the coefficients of any like radicals.

The correct solution is:

$5\sqrt{45}-\sqrt{20} = 5\sqrt{9\cdot5}-\sqrt{4\cdot5}$

$= 15\sqrt{5}-2\sqrt{5}$

$= 13\sqrt{5}$

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Reflect on your understanding of the concepts addressed in the *Practice* exercises in the table provided.

Question Number	Got it!	Almost there…	Need to retry or ask for help.	Similar questions from ***Pre-Calculus 11***
1				p. 280 #19
2				p. 279 #8ac, 9bcd, 10ac
3				p. 289 #1ace, 2ac, 3cd
4				p. 290 #4ace, 5bd
5				p. 290 #6, 7

Please return to *Lesson 3.2* to continue your work in *Unit 3: Radicals*.