Unit 1: Radicals Lesson 1.2

Coach's Corner – III

1. Simplify the following. Use exact values only and show all steps.

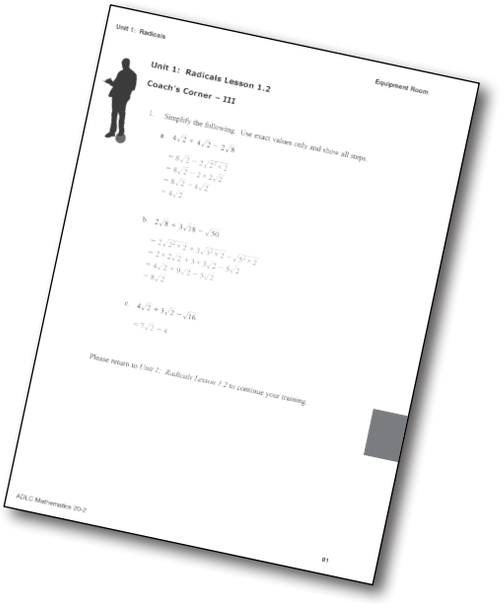
   a. $4\sqrt{2} + 4\sqrt{2} - 2\sqrt{8}$

   b. $2\sqrt{8} + 3\sqrt{18} - \sqrt{50}$

   c. $4\sqrt{2} + 3\sqrt{2} - \sqrt{16}$

Please go to the *Equipment Room* to check your solutions before returning to *Lesson 1.2*.

After you have assessed your work, reflect on your understanding of the concepts addressed in the *Coach's Corner* exercises in the table provided.


Unit 1: Radicals

Unit 1: Radicals Lesson 1.2 Equipment Room

Coach's Corner – III

1. Simplify the following. Use exact values only and show all steps.

a. $4\sqrt{2} + 4\sqrt{2} - 2\sqrt{8}$

$= 8\sqrt{2} - 2\sqrt{2^2 \times 2}$

$= 8\sqrt{2} - 2 \times 2\sqrt{2}$

$= 8\sqrt{2} - 4\sqrt{2}$

$= 4\sqrt{2}$

b. $2\sqrt{8} + 3\sqrt{18} - \sqrt{50}$

$= 2\sqrt{2^2 \times 2} + 3\sqrt{3^2 \times 2} - \sqrt{5^2 \times 2}$

$= 2 \times 2\sqrt{2} + 3 \times 3\sqrt{2} - 5\sqrt{2}$

$= 4\sqrt{2} + 9\sqrt{2} - 5\sqrt{2}$

$= 8\sqrt{2}$

c. $4\sqrt{2} + 3\sqrt{2} - \sqrt{16}$

$= 7\sqrt{2} - 4$

Please return to *Unit 1: Radicals Lesson 1.2* to continue your training.

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Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			

Unit 1: Radicals Lesson 1.2

Coach's Corner – IV

1. Expand and simplify. Show all steps.

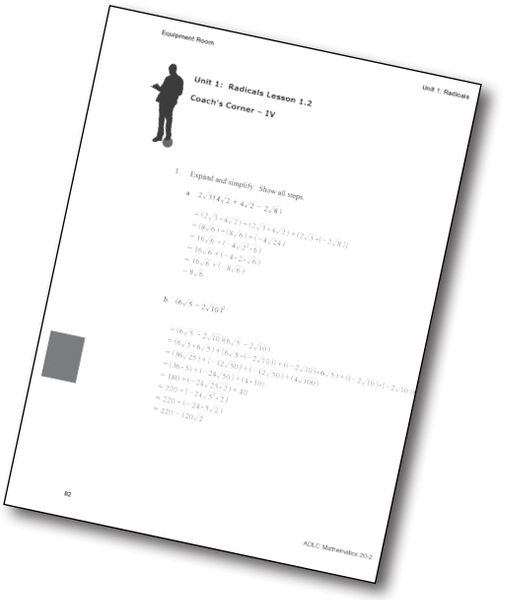
   a. $2\sqrt{3}\,(4\sqrt{2} + 4\sqrt{2} - 2\sqrt{8})$

   b. $(6\sqrt{5} - 2\sqrt{10})^2$

c. $\dfrac{8\sqrt{18}}{3\sqrt{75}}$

Please go to the *Equipment Room* to check your solutions before returning to *Lesson 1.2*.

After you have assessed your work, reflect on your understanding of the concepts addressed in the *Coach's Corner* exercises in the table provided.


Equipment Room

Unit 1: Radicals

Unit 1: Radicals Lesson 1.2
Coach's Corner – IV

1. Expand and simplify. Show all steps.

a. $2\sqrt{3}(4\sqrt{2} + 4\sqrt{2} - 2\sqrt{8})$

$= (2\sqrt{3} \times 4\sqrt{2}) + (2\sqrt{3} \times 4\sqrt{2}) + (2\sqrt{3} \times (-2\sqrt{8}))$
$= (8\sqrt{6}) + (8\sqrt{6}) + (-4\sqrt{24})$
$= 16\sqrt{6} + (-4\sqrt{2^2 \times 6})$
$= 16\sqrt{6} + (-4 \times 2\sqrt{6})$
$= 16\sqrt{6} + (-8\sqrt{6})$
$= 8\sqrt{6}$

b. $(6\sqrt{5} - 2\sqrt{10})^2$

$= (6\sqrt{5} - 2\sqrt{10})(6\sqrt{5} - 2\sqrt{10})$
$= (6\sqrt{5} \times 6\sqrt{5}) + (6\sqrt{5} \times (-2\sqrt{10})) + ((-2\sqrt{10}) \times 6\sqrt{5}) + ((-2\sqrt{10}) \times (-2\sqrt{10}))$
$= (36 \times 5) + (-12\sqrt{50}) + (-12\sqrt{50}) + (4 \times 10)$
$= 180 + (-24\sqrt{25 \times 2}) + (40)$
$= 220 + (-24 \times 5\sqrt{2})$
$= 220 - 120\sqrt{2}$

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Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			

Unit 1: Radicals Lesson 1.2

Coach's Corner – V

Find the errors by circling them, explain the error, and show the steps to correct them.

1. $\sqrt{24x} - 4\sqrt{6x} - 2\sqrt{294x}$
$= 2\sqrt{6x} + 4\sqrt{6x} - 2 \cdot 49\sqrt{6x}$
$= 2\sqrt{6x} + 4\sqrt{6x} - 98\sqrt{6x}$
$= -92\sqrt{6x}$ when $x \geq 0$ and where $x \in \mathrm{R}$

Show steps to determine correct answer:

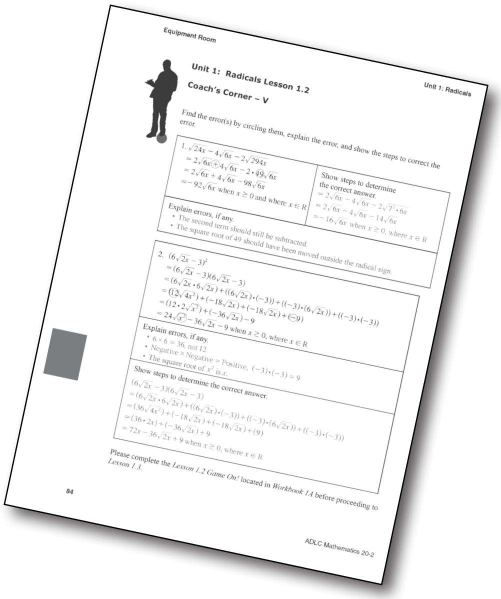
Explain errors, if any:

2. $(6\sqrt{2x} - 3)^2$
$= (6\sqrt{2x} - 3)(6\sqrt{2x} - 3)$
$= (6\sqrt{2x} \cdot 6\sqrt{2x})((6\sqrt{2x}) \cdot (-3)) + ((-3) \cdot (6\sqrt{2x})) + ((-3) \cdot (-3))$
$= (12\sqrt{4x^2}) + (-18\sqrt{2x}) + (-18\sqrt{2x}) + (-9)$
$= (12 \cdot 2\sqrt{x^2}) + (-36\sqrt{2x}) - 9$
$= 24\sqrt{x^2} - 36\sqrt{2x} - 9$ when ≥ 0 and where $x \in \mathrm{R}$

Explain errors, if any:

Show steps to determine the correct answer:

Please go to the *Equipment Room* to check your solutions before proceeding to *Game On!* on the next page of this *Workbook*.

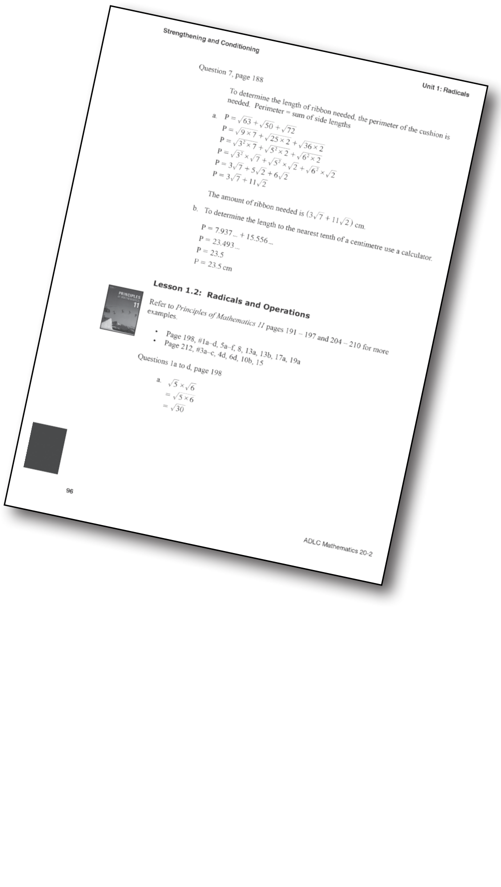


After you have assessed your work, reflect on your understanding of the concepts addressed in the *Coach's Corner* exercises in the table provided.

Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			
2			

Note: Before you complete *Game On!*, you may review your skills and get more practice by completing the following problems in *Principles of Mathematics 11*:

- Page 198, #1a to d, 5a to f, 8, 13a, 13b, 17a, 19a
- Page 212, #3a to c, 4d, 6b, 10b, 15



Check your work in *Strengthening and Conditioning*.