ALBERTA DISTANCE LEARNING CENTRE
Mathematics 10C
MAT1791
Workbook 5.4

Student's Questions and Comments

FOR STUDENT USE ONLY

Student Name:

_____

FOR ADLC USE ONLY

Assigned to

_____

Marked by

_____

Date received

_____

Summary

	Marks Earned	Total Possible Marks	Percent
5.4 Practice – VI	**I have _____ /8 and _____ %.**		
Lesson 5.4 Assignment		8	

Teacher's Comments:

_____

Teacher's Signature

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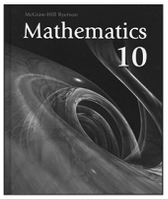

Mathematics 10

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Practice Assessment

The *Practice* section provides exercise questions and allows you to self-reflect on your conceptual understanding of the *Lesson* skills. You will mark your *Practice* work in each *Workbook* according to the following rubric.

Category	Strategy and Procedures	Response to Questions
	I have…	*I have…*
4	• used efficient and effective strategies to solve the problem(s)	• provided detailed explanations and followed directions appropriately to complete all questions
3	• used effective strategies to solve the problem(s)	• provided clear explanations and followed directions adequately to complete most questions
2	• used effective strategies inconsistently to solve the problem(s)	• provided incomplete explanations and followed some directions to complete a few questions
1	• used ineffective strategies to solve the problem(s)	• provided incomplete explanations and does not followed directions to complete some questions

Complete *Practice* exercises using your best work, showing all relevant steps needed to arrive at your solution. Refer to the *Module* to review lesson instructions. Contact your teacher for assistance or clarification as needed, or to investigate the topic further.

Check and correct your work using the solutions provided in *Appendix* in the *Module*.

Practice is worth 8 marks.

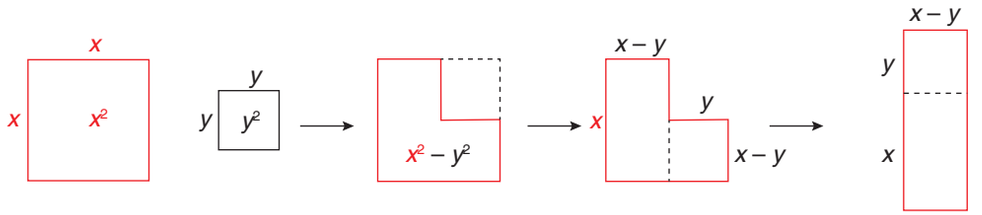
After you have assessed your work, reflect on your understanding of the concepts in the table provided at the end of each *Practice* section.

Lesson 5.4: Other Factoring Strategies

Complete the *Practice* below. When you have completed all the questions for *Lesson 5.4 Practice – VI* 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 – VI

1. This diagram was used in *Lesson 5.4* to help explain factoring a difference of squares.



a. Explain the diagram.

b. How does this diagram show that $x^2 - y^2 = (x + y)(x - y)$?

2. Show that $4p^2 - 9$ can be factored using each of the following methods.

   a. algebra tiles

   b. decomposition

   c. a difference of squares

3. Factor each of the following expressions.

   a. $121 - p^2$

   b. $a^2 - b^2$

4. Factor each of the following expressions.

   a. $n^2 - 4n + 4$

   b. $4t^2 + 8t + 4$

5. Arnold said he can multiply some large numbers easily by factoring a difference of squares. He showed the following example.

$$\begin{aligned}(54)(46) &= (50 + 4)(50 - 4)\\ &= 50^2 - 4^2\\ &= 2500 - 16\\ &= 2484\end{aligned}$$

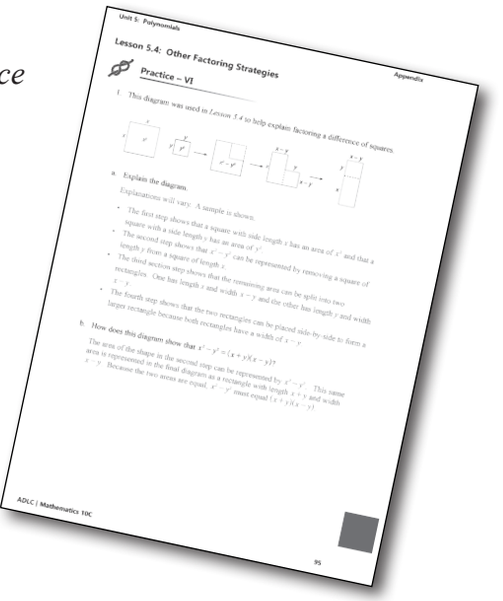
   Comment on Arnold's procedure.

Mark your work for *Lesson 5.4 Practice – VI* using the solutions provided in the *Appendix*. 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 5.4 Practice – VI* is _____.

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


Unit 5: Polynomials

Lesson 5.4: Other Factoring Strategies

Practice – VI

Appendix

1. This diagram was used in *Lesson 5.4* to help explain factoring a difference of squares.

a. Explain the diagram.

Explanations will vary. A sample is shown.

- The first step shows that a square with side length x has an area of x^2 and that a square with a side length y has an area of y^2.
- The second step shows that $x^2 - y^2$ can be represented by removing a square of length y from a square of length x.
- The third section step shows that the remaining area can be split into two rectangles. One has length x and width $x - y$ and the other has length y and width $x - y$.
- The fourth step shows that the two rectangles can be placed side-by-side to form a larger rectangle because both rectangles have a width of $x - y$.

b. How does this diagram show that $x^2 - y^2 = (x + y)(x - y)$?

The area of the shape in the second step can be represented by $x^2 - y^2$. This same area is represented in the final diagram as a rectangle with length $x + y$ and width $x - y$. Because the two areas are equal, $x^2 - y^2$ must equal $(x + y)(x - y)$.

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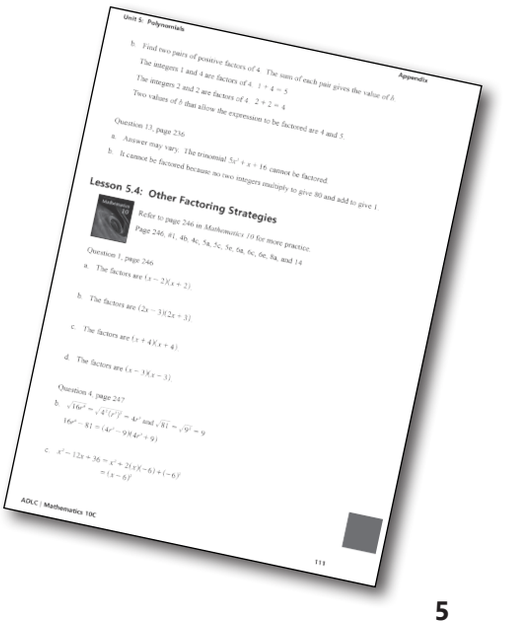
Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			
2			
3			
4			
5			

You may proceed to *Explore Your Understanding Assignment* on the next page of this *Workbook*.

Note: Before you complete *Explore Your Understanding*, you may review your skills and get more practice by completing the following problems in *Mathematics 10*.

- Page 246, #1, 4b, 4c, 5a, 5c, 5e, 6a, 6c, 6e, 8a, and 14

Check your work in *Enhance Your Understanding*.


Unit 5: Polynomials

Appendix

b. Find two pairs of positive factors of 4. The sum of each pair gives the value of b.

The integers 1 and 4 are factors of 4. $1 + 4 = 5$

The integers 2 and 2 are factors of 4. $2 + 2 = 4$

Two values of b that allow the expression to be factored are 4 and 5.

Question 13, page 236

a. Answer may vary. The trinomial $5x^2 + x + 16$ cannot be factored.

b. It cannot be factored because no two integers multiply to give 80 and add to give 1.

Lesson 5.4: Other Factoring Strategies

Refer to page 246 in *Mathematics 10* for more practice.

Page 246, #1, 4b, 4c, 5a, 5c, 5e, 6a, 6c, 6e, 8a, and 14

Question 1, page 246

a. The factors are $(x - 2)(x + 2)$.

b. The factors are $(2x - 3)(2x + 3)$.

c. The factors are $(x + 4)(x + 4)$.

d. The factors are $(x - 3)(x - 3)$.

Question 4, page 247

b. $\sqrt{16x^2} = \sqrt{4^2(x^2)} = 4x$ and $\sqrt{81} = \sqrt{9^2} = 9$

$16x^2 - 81 = (4x - 9)(4x + 9)$

c. $x^2 - 12x + 36 = x^2 + 2(x)(-6) + (-6)^2$

$= (x - 6)^2$

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Lesson 5.4: Other Factoring Strategies

Explore Your Understanding Assignment

(2) 1. Explain how you can determine if a trinomial is a perfect square trinomial.

2. Factor each of the following expressions.

(1) a. $a^2 - 64$

(1) b. $36x^2 - 1$

3. Factor each of the following expressions.

(1) a. $x^2 + 14x + 49$

(1) b. $81w^2 - 36wz + 4z^2$

(2) 4. Mila factored $m^2 + 12mn + 144n^2$ as shown.

I know that since $\sqrt{m^2} = m$ and $\sqrt{144n^2} = 12n$, the first and third terms of the trinomial are perfect squares. This means that $m^2 + 12mn + 144n^2 = (m + 12n)^2$.

Comment on Mila's strategy.

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