ALBERTA DISTANCE LEARNING CENTRE
Mathematics 10C
MAT1791
Workbook 5.3

FOR STUDENT USE ONLY

Student Name:

_____

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Assigned to

_____

Marked by

_____

Date received

_____

Summary

	Marks Earned	Total Possible Marks	Percent
5.3 Practice – III	**I have ____ /8 and ____ %.**		
5.3 Practice – IV	**I have ____ /8 and ____ %.**		
5.3 Practice – V	**I have ____ /8 and ____ %.**		
Lesson 5.3 Assignment		16	

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 have 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 5.3: Factoring Trinomials

Complete the *Practice* below. When you have completed all the questions for *Lesson 5.3 Practice – III* 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 – III

1. Use algebra tiles to factor the following trinomials.

   a. $x^2 - 4x + 3$

   b. $p^2 + 2p - 8$

c. $2r^2 - 7r - 4$

d. $9x^2 - 6x + 1$

c. $2r^2 - 7r - 4$

2.   Identify two integers with the given product and sum.

   a.   product $= 42$, sum $= 13$

   b.   product $= 36$, sum $= -13$

   c.   product $= -9$, sum $= 0$

3.   Factor each of the following.

   a. $x^2 + x - 12$

   b. $i^2 - 10i + 25$

   c. $x^2 - 9$ (Hint: This isn't a trinomial, but it can be factored using the same strategy.)

4. Luke factored $x^2 - 9x + 14$ as shown.

I know –7 and –2 have a sum of –9 and a product of 14, so the factors must be $x - 7$ and $x - 2$.

Luke showed his work to Destiny, who was working on the same problem. She said that Luke could not be correct because she found different factors for $x^2 - 9x + 14$. Then, she showed Luke her verification.

$$(2 - x)(7 - x) = (2)(7) + (2)(-x) + (7)(-x) + (-x)(-x)$$
$$= 14 - 2x - 7x + x^2$$
$$= 14 - 9x + x^2$$
$$= x^2 - 9x + 14$$

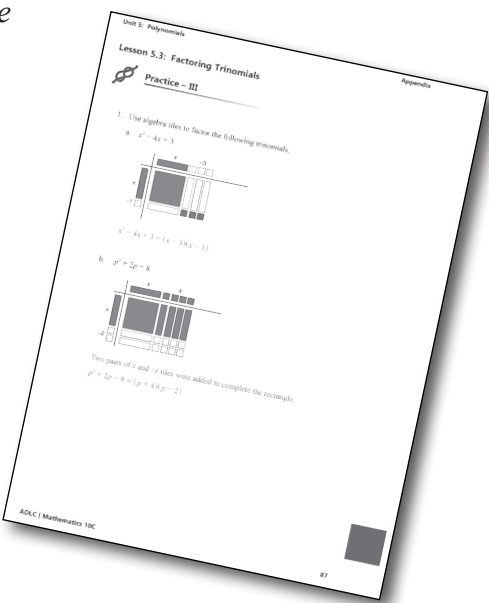Explain how this discussion could be resolved.

Mark your work for *Lesson 5.3 Practice – III* 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 5.3 Practice – III* is _____ .

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.
1			
2			
3			
4			

Please return to *Lesson 5.3* to continue your work in *Unit 5: Polynomials*.

Lesson 5.3: Factoring Trinomials

Complete the *Practice* below. When you have completed all the questions for *Lesson 5.3 Practice – IV* 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 – IV

1. In *Lesson 5.3*, when trying to determine a strategy for factoring trinomials of the form $ax^2 + bx + c, a \neq 1$, the binomial factors $(mx + p)$ and $(nx + q)$ were multiplied to give $mnx^2 + (mq + np)x + pq$. Match each expression to the appropriate section of the algebra tile array shown. Explain your choices.

   - *mn*
   - *mq*
   - *np*
   - *pq*
   - $mx + p$
   - $nx + q$

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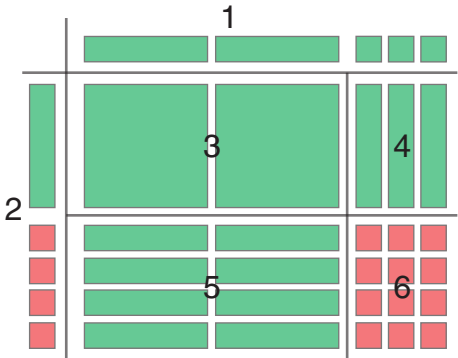
2.   Factor each of the following.

   a. $15x^2 + 16x + 4$

   b. $4x^2 - 4x + 1$

   c. $-2a^2 - 7a - 3$

3. Mariah tried to factor $3x^2 + 23x - 36$. Her work is shown.

The value of ac is -108 and the value of b is 23. Two numbers that add to give 23 and multiply to give -108 are 27 and -4. This means the factors of $3x^2 + 23x - 36$ are $(x + 27)(x - 4)$.

Comment on Mariah's strategy. If she made an error, make the necessary corrections.
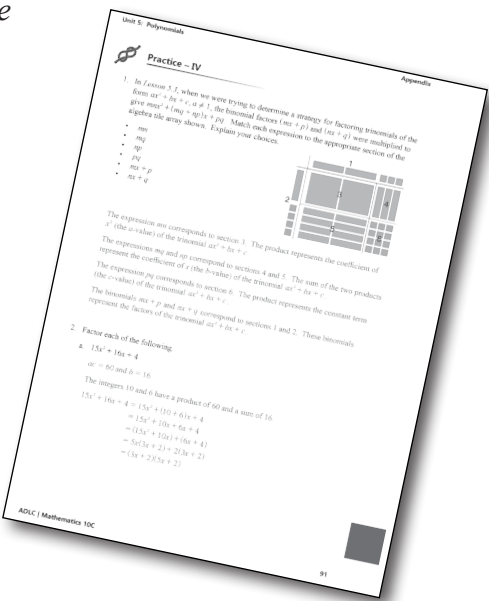
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Mark your work for *Lesson 5.3 Practice – IV* using the solutions provided in the *Appendix*. Then, apply the rubric found at the beginning of the *Workbook*.

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

My self-assessed mark on *Lesson 5.3 Practice – IV* is _____.

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.
1			
2			
3			

Please return to *Lesson 5.3* to continue your work in *Unit 5: Polynomials*.

Lesson 5.3: Factoring Trinomials

Complete the *Practice* below. When you have completed all the questions for *Lesson 5.3 Practice – V* 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 – V

1.   Factor each of the following expressions.

a. $7x^2 + 21x + 14$

b. $6r^2 + 12rs + 6s^2$

c. $4x^2 - 4xy - 8y^2$

d. $-6x^2 + 10xy + 4y^2$

2.   Using an example, explain why factoring a GCF out of a trinomial can make factoring the trinomial easier.

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Mark your work for *Lesson 5.3 Practice – V* 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 5.3 Practice – V* is _____.

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.
1			
2			
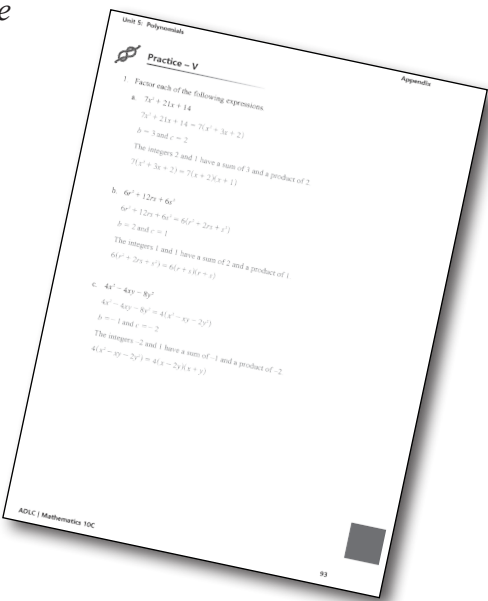
You may proceed to *Explore Your Understanding Assignment* on the next page of this *Workbook*.

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 234, #1, 2, 3a, 3b, 4a, 4c, 4e, 6a, 6c, 6e, 9a, 9b, and 13

Check your work in *Enhance Your Understanding*.
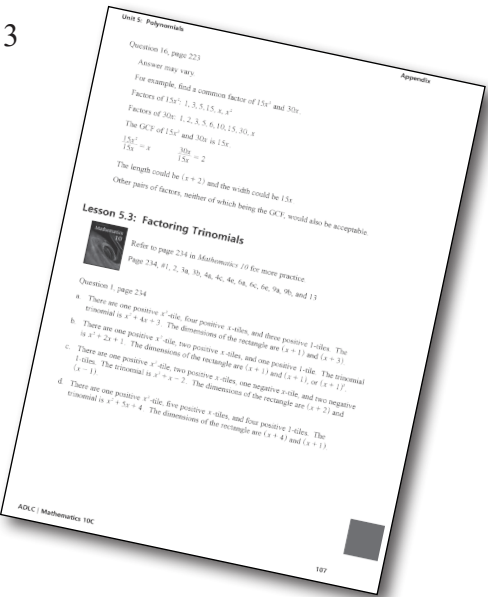
Lesson 5.3: Factoring Trinomials

Explore Your Understanding Assignment

1.   Factor each of the following.

①   a.   Factor $2x^2 + 11x + 15$ using algebra tiles.

②   b.   Factor $2x^2 + 11x + 15$ symbolically.

②   c.   Explain how the two methods are similar.

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2. Near the beginning of *Lesson 5.3*, a strategy for factoring trinomials of the form $x^2 + bx + c$ was developed by exploring the product of the binomials $(x + p)$ and $(x + q)$.

⑴   a. Explain how the development of this factoring strategy is an example of working backwards to solve a problem.

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b. The product of $(x + p)(x + q)$ can be written as $x^2 + (p + q)x + pq$.

⑴   i. An intermediate step in this multiplication is
$x^2 + px + qx + pq = x^2 + (p + q)x + pq$.
Explain why $px + qx = (p + q)x$.

⑴   ii. Explain why the expression $x^2 + (p + q)x + pq$ leads to the need to determine integers that add to b and have a product c when factoring a trinomial of the form $x^2 + bx + c$.

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3.   Juan is trying to factor $x^2 + 7x + 3$ and makes the following table.

p	q	$p + q$	pq
1	3	4	3
3	1	4	3
−1	−3	−4	3
−3	−1	−4	3

Juan concludes that $x^2 + 7x + 3$ cannot be factored using integers.

⓵   a.   Is Juan correct?

_____

_____

⓵   b.   Comment on Juan's strategy and improve it if possible.

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4.   Factor each of the following expressions.

⓶   a. $x^2 + 9x + 20$

(2)   b. $10n^2 + n - 3$

(2)   c. $2d^2 - 8de + 6e^2$

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