ALBERTA DISTANCE LEARNING CENTRE
Mathematics 10C
MAT1791
Workbook 5.2

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
5.2 Practice – II	**I have _____ /8 and _____ %.**		
Lesson 5.2 Assignment		13	

Teacher's Comments:

_____

Teacher's Signature

REVISED February 2019

CANADIAN CATALOGUING IN PUBLICATION DATA

MAT1791
Mathematics 10C
ISBN: 978-1-927090-75-6
Workbook 5.2

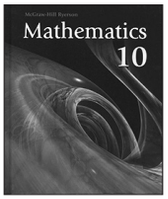
4601 - 63 Avenue
Barrhead, Alberta Canada T7N 1P4

Printed in Canada

Alberta Distance Learning Centre website:

http://www.adlc.ca

The Internet can be a valuable source of information. However, because publishing to the Internet is neither controlled nor censored, some content may be inaccurate or inappropriate. Students are encouraged to evaluate websites for validity and to consult multiple sources.



Mathematics 10

ADLC | Alberta Distance Learning Centre

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 5.2: Common Factors of Polynomials

Complete the *Practice* below. When you have completed all the questions for *Lesson 5.2 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

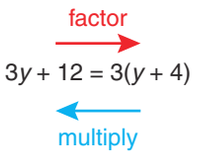
1. Determine the GCF of $41nr^3$ and $17n^3r$.

2. Explain how to determine the GCF of x^{33}, x^{47}, and x^{25}, by inspection.

3. Write each of $28x^2$ and $42xy^2$ as a product of their GCF and another monomial factor.

4. Write a trinomial with a GCF of $9rs^2$.

5. This diagram shows that factoring and multiplying are opposite processes. Explain what that means.



6. Factor each of the following polynomials using the greatest common factor.

   a. $4x^2 + 10xy - 18y^2$

   b. $-12a^3b^2c^2 - 18a^2b^2c^2 - 36a^2b^3c$

7. The surface area formulas are shown for three objects.

Right Prism	$SA = 2lw + 2hw + 2lh$
Right Cylinder	$SA = 2\pi r^2 + 2\pi rh$
Right Cone	$SA = \pi r^2 + \pi rs$

Write an alternative surface area formula for each object by factoring using the greatest common factor.

8. Chaz factored $4x^2 + 12x - xy - 3y$ as follows.

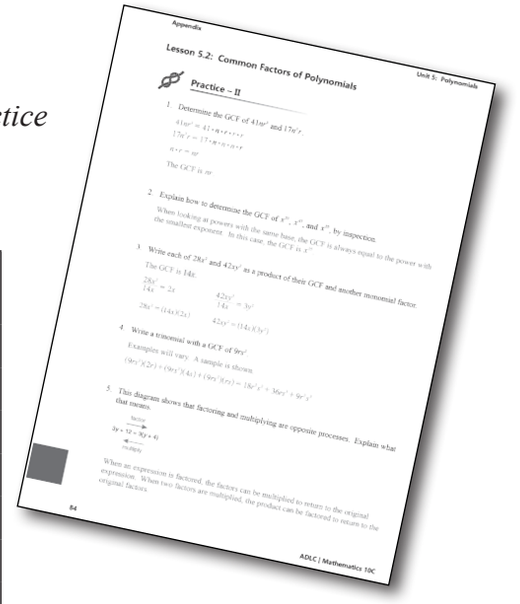
$$\begin{aligned} 4x^2 + 12x - xy - 3y &= (4x^2 + 12x) + (-xy - 3y) \\ &= (4x)(x + 3) + (-y)(x + 3) \\ &= (x + 3)(4x - y) \end{aligned}$$

Explain Chaz's strategy.

Mark your work for *Lesson 5.2 Practice – II* 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 5.2 Practice – II* is _____.


Appendix

Unit 5: Polynomials

Lesson 5.2: Common Factors of Polynomials

Practice – II

1. Determine the GCF of $43w^2$ and $17w^2r$.

$43w^2 = 43 \cdot w \cdot w$

$17w^2r = 17 \cdot w \cdot w \cdot r$

$w \cdot w$

The GCF is w^2

2. Explain how to determine the GCF of x^m, x^n, and x^p, by inspection.

When looking at powers with the same base, the GCF is always equal to the power with the smallest exponent. In this case, the GCF is x^n.

3. Write each of $28x^2$ and $42xy^2$ as a product of their GCF and another monomial factor.

The GCF is $14x$.

$\frac{28x^2}{14x} = 2x$ $\quad 28x^2 = (14x)(2x)$

$\frac{42xy^2}{14x} = 3y^2$ $\quad 42xy^2 = (14x)(3y^2)$

4. Write a trinomial with a GCF of $9rs^2$.

Examples will vary. A sample is shown.

$(9rs^2)(2r) + (9rs^2)(4s) + (9rs^2)(7r) = 18r^2s^2 + 36rs^3 + 63r^2s^2$

5. This diagram shows that factoring and multiplying are opposite processes. Explain what that means.

factor

$3x + 12 = 3(x + 4)$

multiply

When an expression is factored, the factors can be multiplied to return to the original expression. When two factors are multiplied, the product can be factored to return to the original factors.

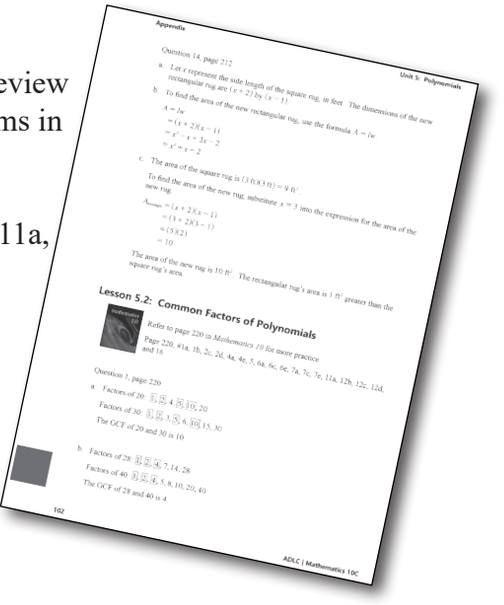
84

ADLC | Mathematics 10C

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			
5			
6			
7			
8			

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


Appendix

Unit 5: Polynomials

Question 14, page 212

a. Let x represent the side length of the square rug, in feet. The dimensions of the new rectangular rug are $(x + 2)$ by $(x - 1)$.

b. To find the area of the new rectangular rug, use the formula $A = lw$.

$A = lw$

$= (x + 2)(x - 1)$

$= x^2 - x + 2x - 2$

$= x^2 + x - 2$

c. The area of the square rug is $(3 \text{ ft})(3 \text{ ft}) = 9 \text{ ft}^2$.

To find the area of the new rug, substitute $x = 3$ into the expression for the area of the new rug.

$A_{\text{new}} = (x + 2)(x - 1)$

$= (3 + 2)(3 - 1)$

$= (5)(2)$

$= 10$

The area of the new rug is 10 ft^2. The rectangular rug's area is 1 ft^2 greater than the square rug's area.

Lesson 5.2: Common Factors of Polynomials

Refer to page 220 in *Mathematics 10* for more practice.

Page 220, #1a, 1b, 2c, 2d, 4a, 4e, 5, 6a, 6c, 6e, 7a, 7c, 7e, 11a, 12b, 12c, 12d, and 16

Question 1, page 220

a. Factors of 20: 1, 2, 4, 5, 10, 20

Factors of 30: 1, 2, 3, 5, 6, 10, 15, 30

The GCF of 20 and 30 is 10.

b. Factors of 28: 1, 2, 4, 7, 14, 28

Factors of 40: 1, 2, 4, 5, 8, 10, 20, 40

The GCF of 28 and 40 is 4.

102

ADLC | Mathematics 10C

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 220, #1a, 1b, 2c, 2d, 4a, 4e, 5, 6a, 6c, 6e, 7a, 7c, 7e, 11a, 12b, 12c, 12d, and 16

Check your work in *Enhance Your Understanding*.

Lesson 5.2: Common Factors of Polynomials

Explore Your Understanding Assignment

(2) 1. Determine the GCF of $35w^2z^3$ and $42w^3z$.

2. Factor each of the following polynomials using the greatest common factor.

(2) a. $5x^3 + 25x^2 + 10x$

(2) b. $10\,000m^2n^2 + 1\,000mn^2 + 20\,000m^2$

(2) 3. Verify that $3x(5x^2 - 7x + 12)$ is equivalent to $15x^3 - 21x^2 + 36x$.

4. Consider the expression $5(4x-3)+x(4x-3)$.

(1) a. What is the GCF of $5(4x-3)+x(4x-3)$? Explain.

(1) b. Factor $5(4x-3)+x(4x-3)$ using the GCF.

5. In an attempt to factor using a GCF, Mia wrote $8x^2+4x=4x(2x-0)$, which is not correct.

(1) a. Explain how Mia could check her work.

(1) b. What error did Mia make?

(1) c. Show the correct factorization of $8x^2+4x$.

/13