ALBERTA DISTANCE LEARNING CENTRE
Mathematics 10C
MAT1791
Workbook 4.1

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
4.1 Practice – I	**I have _____ /8 and _____ %.**		
Lesson 4.1 Assignment		15	

Teacher's Comments:

_____

Teacher's Signature

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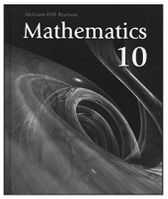

Mathematics 10

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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 4.1: Prime Factors, Greatest Common Factors, and Least Common Multiples

Complete the *Practice* below. When you have completed all the questions for *Lesson 4.1 Practice – I* 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 – I

1. A simple cryptosystem uses algorithms with prime factors for encryption and decryption. Given the character code chart below, decrypt the code using prime factorization.

Character Codes

Code	Character	Code	Character	Code	Character
2×5	A	2×13	L	$3 \times 3 \times 5$	W
$2 \times 2 \times 3$	B	$3 \times 3 \times 3$	M	2×23	X
2×7	C	$2 \times 2 \times 7$	N	$2 \times 2 \times 2 \times 2 \times 3$	Y
3×5	D	$2 \times 3 \times 5$	O	7×7	Z
$2 \times 2 \times 2 \times 2$	E	$2 \times 2 \times 2 \times 2 \times 2$	P	$2 \times 5 \times 5$	$
$2 \times 3 \times 3$	F	2×17	Q	$2 \times 2 \times 13$	%
$2 \times 2 \times 5$	G	$2 \times 2 \times 3 \times 3$	R	$2 \times 3 \times 3 \times 3$	*
3×7	H	2×19	S	5×11	+
2×11	I	$2 \times 2 \times 2 \times 5$	T	$2 \times 2 \times 2 \times 7$	–
$2 \times 2 \times 2 \times 3$	J	$2 \times 3 \times 7$	U	2×29	.
5×5	K	$2 \times 2 \times 11$	V	$2 \times 2 \times 3 \times 5$	:

32	36	22	27	16	15		18	30	36

36	10	15	22	14	10	26	38	58

2. Determine the greatest common factor of 54 and 99.

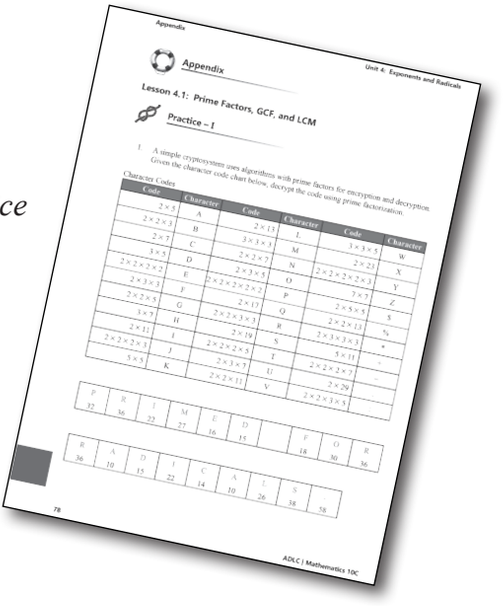
3. Determine the least common multiple of 5, 48, and 96.

4. There are 18 male students and 24 female students in a grade 10 math class. The math teacher wants to divide the class into groups that will have equal amounts of girls in each group and equal amounts of boys in each group. What is the greatest number of groups that the teacher can make?

Mark your work for *Lesson 4.1 Practice – I* 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 4.1 Practice – I* is _____.


Appendix

Unit 4: Exponents and Radicals

Appendix

Lesson 4.1: Prime Factors, GCF, and LCM

Practice – I

1. A simple cryptosystem uses algorithms with prime factors for encryption and decryption. Given the character code chart below, decrypt the code using prime factorization.

Character Codes

Code	Character	Code	Character	Code	Character
2×5	A	2×13	L	$3 \times 3 \times 5$	W
$2 \times 2 \times 3$	B	$3 \times 3 \times 3$	M	2×23	X
2×7	C	$2 \times 3 \times 7$	N	$2 \times 2 \times 2 \times 2 \times 3$	Y
3×5	D	$2 \times 3 \times 5$	O	7×7	Z
$2 \times 2 \times 2 \times 2$	E	$2 \times 2 \times 2 \times 2 \times 2$	P	$2 \times 5 \times 5$	$\frac{1}{2}$
$2 \times 3 \times 3$	F	2×11	Q	$2 \times 2 \times 13$	$\frac{1}{3}$
$2 \times 2 \times 5$	G	$2 \times 2 \times 3 \times 3$	R	$2 \times 3 \times 3 \times 3$	$\frac{1}{4}$
3×7	H	2×19	S	5×11	*
2×11	I	$2 \times 2 \times 2 \times 5$	T	$2 \times 2 \times 2 \times 7$	
$2 \times 2 \times 2 \times 3$	J	$2 \times 3 \times 7$	U	2×29	
5×5	K	$2 \times 3 \times 11$	V	$2 \times 2 \times 3 \times 5$	

P	R	I	M	E	D		F	O	R
32	36	22	27	16	15		18	30	36

R	A	D	I	C	A	L	S
36	10	15	22	14	10	26	58

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

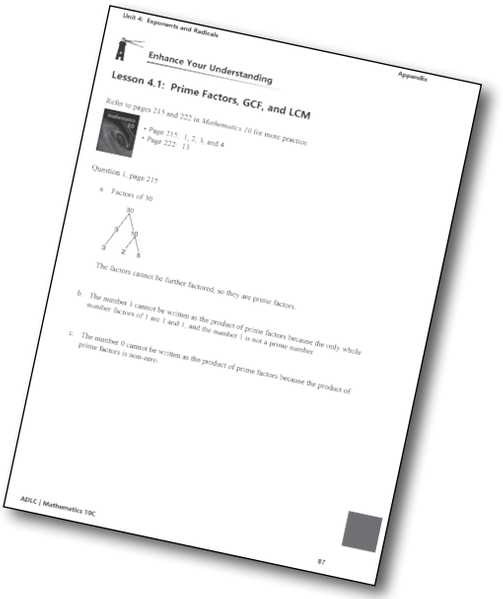
Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			
2			
3			
4			

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 215, #1, 2, 3, and 4
- Page 222, #13

Check your work in *Enhance Your Understanding*.


Unit 4: Exponents and Radicals

Enhance Your Understanding

Appendix

Lesson 4.1: Prime Factors, GCF, and LCM

Refer to pages 215 and 222 in *Mathematics 10* for more practice.

- Page 215: 1, 2, 3, and 4
- Page 222: 13

Question 1, page 215

a. Factors of 30

The factors cannot be further factored, so they are prime factors.

b. The number 1 cannot be written as the product of prime factors because the only whole number factors of 1 are 1 and 1, and the number 1 is not a prime number.

c. The number 0 cannot be written as the product of prime factors because the product of prime factors is non-zero.

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Lesson 4.1: Prime Factors, Greatest Common Factors, and Least Common Multiples

Explore Your Understanding Assignment

(2) 1. Write the prime factorization of 560. Show your work.

(3) 2. a. Determine the GCF of 24, 48, and 56. Show your work.

(3) b. Determine the LCM of 24, 48, and 96. Show your work.

(3) 3. What is the side length of the largest square tile that can be used to tile a rectangular floor measuring 12 ft by 38 ft if the tiles cannot be cut?

(4) 4. Ross and Annie do chores at their home acreage. Ross mows the acreage lawn every 12 days, and Annie bathes the dog every 21 days. If Ross and Annie do their chores today, how many days will pass before they both to their chores again on the same day?

/15