ALBERTA DISTANCE LEARNING CENTRE
Mathematics 10C
MAT1791
Workbook 7.4

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
7.4 Practice – IV	**I have _____ /8 and _____ %.**		
Lesson 7.4 Assignment		12	

Teacher's Comments:

_____

Teacher's Signature

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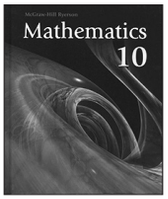

Mathematics 10

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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 7.4: Parallel and Perpendicular Lines

Complete the *Practice* below. When you have completed all the questions for *Lesson 7.4 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. Decide if each pair of lines is parallel, perpendicular, or neither. Explain your choice.

   a. $y = 9x + 4$ and $18x - 2y + 13 = 0$

   b. $y - 7 = \frac{3}{2}(x + 5)$ and $y = \frac{2}{3}x$

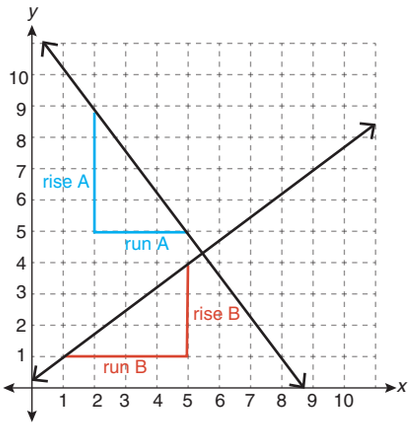
   c. $y = 2.5x + 1$ and $y = -0.4x - 1$

2. Line A passes through the points $(-1, -1)$ and $(5, 3)$. Line B passes through the points $(7, -5)$ and $(1, r)$. Determine a value of r such that the two lines are

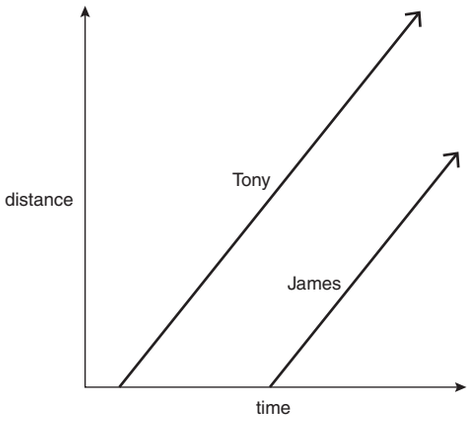
   a. parallel

   b. perpendicular

3. The grid shows two perpendicular lines. Use the information provided on the grid to show that the slopes of the lines have a product of –1.



4. Tony and James both walked home from school, as shown in the graph provided.



a. Describe a scenario that would lead to this graph.

b. The two lines in the graph are parallel. Explain what this means in the given context.

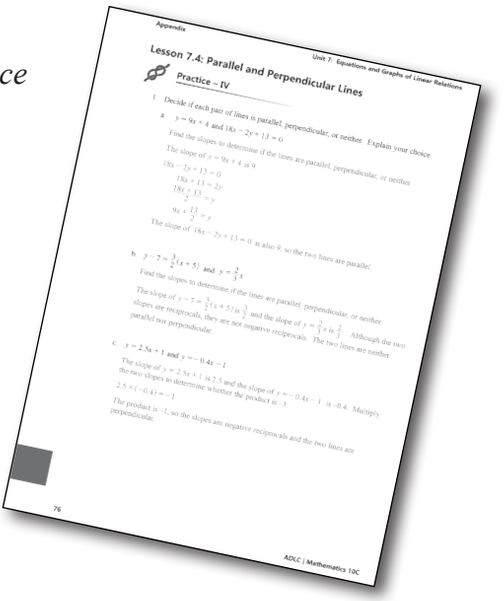
c. Suppose the two lines were not parallel. Would this guarantee that James and Tony will meet? Explain.

Mark your work for *Lesson 7.4 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 7.4 Practice – IV* is _____.

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


Appendix

Unit 7: Equations and Graphs of Linear Relations

Lesson 7.4: Parallel and Perpendicular Lines

Practice – IV

1. Decide if each pair of lines is parallel, perpendicular, or neither. Explain your choice.

a. $y = 9x + 4$ and $18x - 2y + 13 = 0$

Find the slopes to determine if the lines are parallel, perpendicular, or neither.

The slope of $y = 9x + 4$ is 9.

$18x - 2y + 13 = 0$

$18x + 13 = 2y$

$\frac{18x + 13}{2} = y$

$9x + \frac{13}{2} = y$

The slope of $18x - 2y + 13 = 0$ is also 9, so the two lines are parallel.

b. $y - 7 = \frac{3}{2}(x + 5)$ and $y = \frac{2}{3}x$

Find the slopes to determine if the lines are parallel, perpendicular, or neither.

The slope of $y - 7 = \frac{3}{2}(x + 5)$ is $\frac{3}{2}$ and the slope of $y = \frac{2}{3}x$ is $\frac{2}{3}$. Although the two slopes are reciprocals, they are not negative reciprocals. The two lines are neither parallel nor perpendicular.

c. $y = 2.5x + 1$ and $y = -0.4x - 1$

The slope of $y = 2.5x + 1$ is 2.5 and the slope of $y = -0.4x - 1$ is -0.4. Multiply the two slopes to determine whether the product is -1.

$2.5 \times (-0.4) = -1$

The product is -1, so the slopes are negative reciprocals and the two lines are perpendicular.

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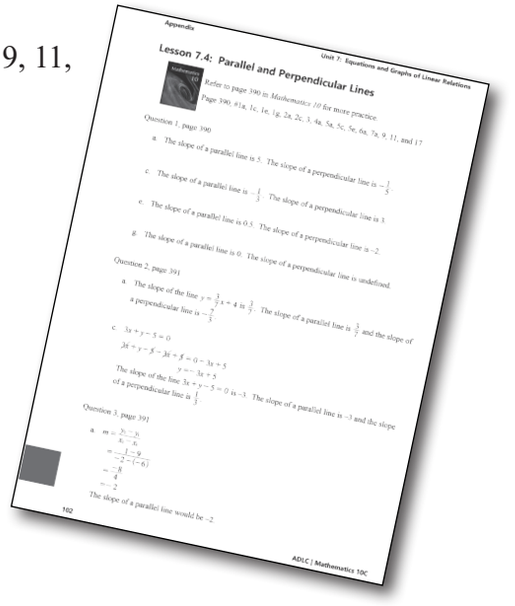
Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			
2			
3			
4			

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 390, #1a, 1c, 1e, 1g, 2a, 2c, 3, 4a, 5a, 5c, 5e, 6a, 7a, 9, 11, and 17

Check your work in *Enhance Your Understanding*.


Appendix

Unit 7: Equations and Graphs of Linear Relations

Lesson 7.4: Parallel and Perpendicular Lines

Refer to page 390 in *Mathematics 10* for more practice.

Page 390: #1a, 1c, 1e, 1g, 2a, 2c, 3, 4a, 5a, 5c, 5e, 6a, 7a, 9, 11, and 17

Question 1, page 390

a. The slope of a parallel line is 5. The slope of a perpendicular line is $-\frac{1}{5}$.

c. The slope of a parallel line is $-\frac{1}{3}$. The slope of a perpendicular line is 3.

e. The slope of a parallel line is 0.5. The slope of a perpendicular line is -2.

g. The slope of a parallel line is 0. The slope of a perpendicular line is undefined.

Question 2, page 391

a. The slope of the line $y = \frac{3}{2}x + 4$ is $\frac{3}{2}$. The slope of a parallel line is $\frac{3}{2}$ and the slope of a perpendicular line is $-\frac{2}{3}$.

c. $3x + y - 5 = 0$

$3x + y - 5 - 3x + 5 = 0 - 3x + 5$

$y = -3x + 5$

The slope of the line $3x + y - 5 = 0$ is -3. The slope of a parallel line is -3 and the slope of a perpendicular line is $\frac{1}{3}$.

Question 3, page 391

a. $m = \frac{y_2 - y_1}{x_2 - x_1}$

$= \frac{-1 - 9}{-2 - (-6)}$

$= \frac{-8}{4}$

$= -2$

The slope of a parallel line would be -2.

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Lesson 7.4: Parallel and Perpendicular Lines

Explore Your Understanding Assignment

1. The slopes of two lines are $\frac{5}{6}$ and $\frac{2}{p}$. Determine the value of p that will make the lines

(2) a. parallel

(2) b. perpendicular

(1) 2. Explain why negative reciprocals always have a product of –1.

(3) 3. A line passes through the points (14, 5) and (19, 15). Determine an equation for a perpendicular line that passes through the point (19,15).

(1) 4. Do perpendicular lines always have slopes that are negative reciprocals?

5. Arial says that, for any pair of linear relations, if the coefficients of the y-terms are equal and the coefficients of the x-terms are equal, the graphs of the two lines will be parallel.

(1) a. Give an example for which Arial's claim is true.

(1) b. Give an example for which Arial's claim is false.

(1) c. Suggest an improvement to Arial's claim.

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