ALBERTA DISTANCE LEARNING CENTRE
Mathematics 10C
MAT1791
Workbook 7.1

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
7.1 Practice – I	**I have _____ /8 and _____ %.**		
Lesson 7.1 Assignment		13	

Teacher's Comments:

_____

Teacher's Signature

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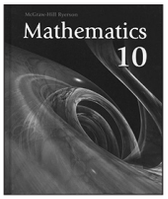

Mathematics 10

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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.

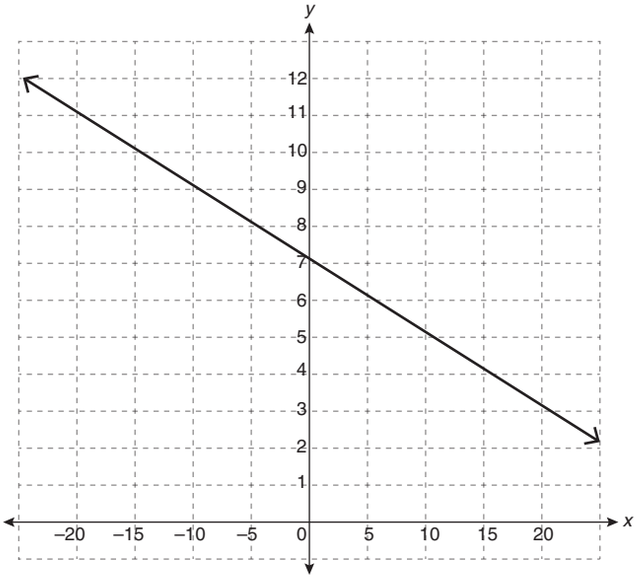
After you have assessed your work, reflect on your understanding of the concepts in the table provided at the end of each *Practice* section.

Lesson 7.1: Slope-Intercept Form of a Linear Equation

Complete the *Practice* below. When you have completed all the questions for *Lesson 7.1 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. State the slope and y-intercept of the following graph. Explain how you determined each.



2. Write each of the following equations in slope-intercept form.

   a. $y + 6 = 3x$

   b. $x = 3y - 18$

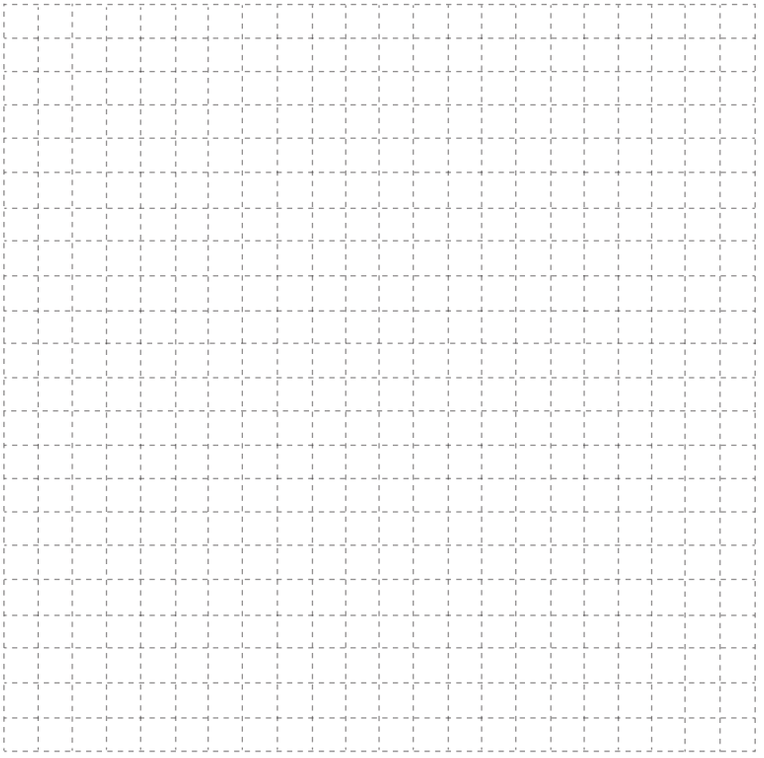
   c. $3x + 12y + 22 = 0$

3. Consider the slope-intercept form of a linear equation, $y = mx + b$.

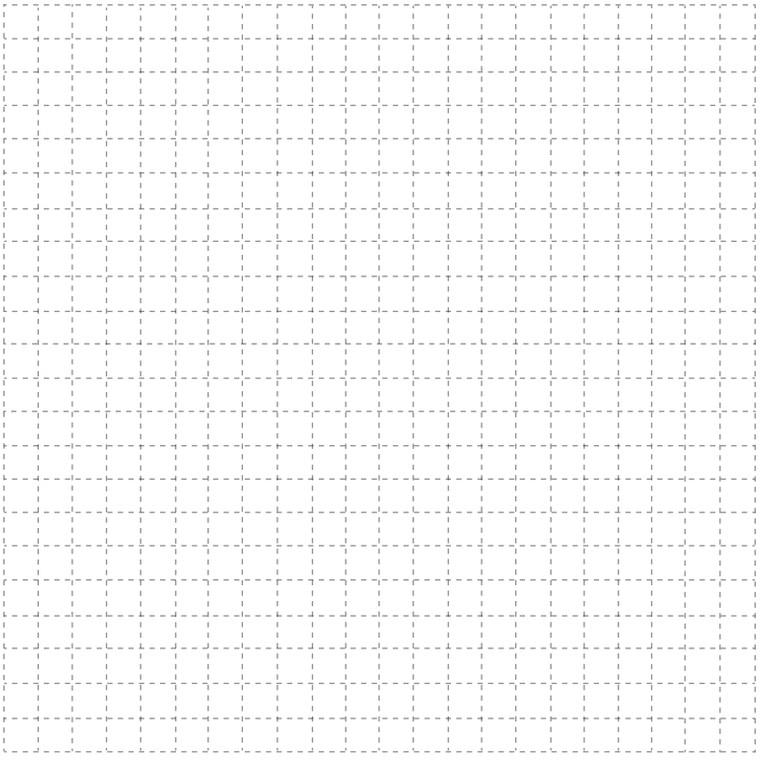
   a. Explain how this form can be used to graph a relation by hand.

b. Graph each of the following.

i. $y = \frac{3}{5}x + 7$



ii. $y = -200 - 40x$



4. Explain how technology could be used to check your graphs from question 3.

5. The graph of a linear relation with a slope of 5.8 passes through the point (–2,–5). Determine an equation for the relation, in slope-intercept form.

6. a. Explain how you can use the equation $y = 4.592x - 8.387$ to determine points on the corresponding graph.

   b. State three points that could be used to graph the relation $y = 4.592x - 8.387$.

7. A plumbing company installs tankless hot water heaters and charges for both installation time and materials used.

   a. The heater and supplies cost $1 800 and the shop charges $110/h for a plumber and an apprentice. Write an equation to represent the total cost to the customer. Be sure to state what each variable represents.

   _____

   _____

   b. i. What is the slope of the relation?

   _____

   ii. What is the vertical-axis intercept of the relation?

   _____

   c. Sketch the graph of the relation.

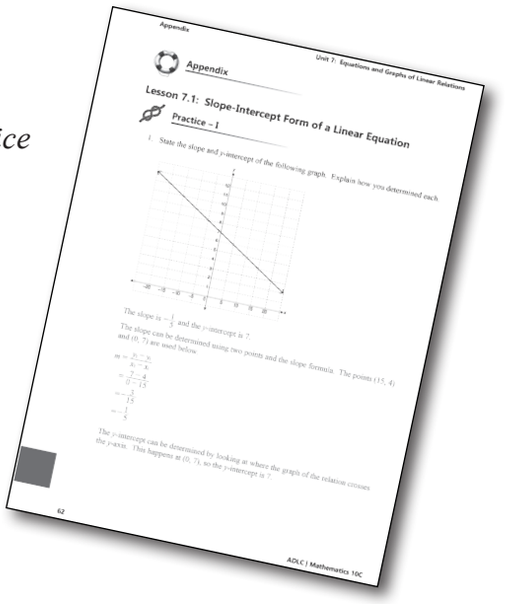
d. If the installation takes 2 hours, how much will the customer be charged?

e. If a customer was charged $2 185, how long did the installation take?

Mark your work for *Lesson 7.1 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 7.1 Practice – I* is _____.


Appendix

Unit 7: Equations and Graphs of Linear Relations

Appendix

Lesson 7.1: Slope-Intercept Form of a Linear Equation

Practice – I

1. State the slope and y-intercept of the following graph. Explain how you determined each.

The slope is $-\frac{1}{3}$ and the y-intercept is 7.

The slope can be determined using two points and the slope formula. The points (15, 4) and (0, 7) are used below.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$= \frac{7 - 4}{0 - 15}$$
$$= \frac{3}{-15}$$
$$= -\frac{1}{5}$$

The y-intercept can be determined by looking at where the graph of the relation crosses the y-axis. This happens at (0, 7), so the y-intercept is 7.

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

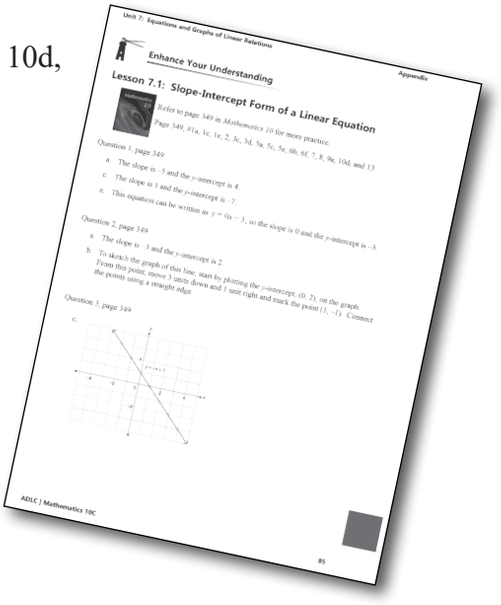
Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			
2			
3			
4			
5			
6			
7			

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 349, #1a, 1c, 1e, 2, 3c, 3d, 5a, 5c, 5e, 6b, 6f, 7, 8, 9a, 10d, and 13

Check your work in *Enhance Your Understanding*.


Unit 7: Equations and Graphs of Linear Relations

Appendix

Enhance Your Understanding

Lesson 7.1: Slope-Intercept Form of a Linear Equation

Refer to page 349 in *Mathematics 10* for more practice.

Page 349, #1a, 1c, 1e, 2, 3c, 3d, 5a, 5c, 5e, 6b, 6f, 7, 8, 9a, 10d, and 13

Question 1, page 349

a. The slope is -5 and the y-intercept is 4.

c. The slope is 1 and the y-intercept is -7.

e. This equation can be written as $y = (0)x - 3$, so the slope is 0 and the y-intercept is -3.

Question 2, page 349

a. The slope is -3 and the y-intercept is 2.

b. To sketch the graph of this line, start by plotting the y-intercept, (0, 2), on the graph. From this point, move 3 units down and 1 unit right and mark the point (1, -1). Connect the points using a straight edge.

Question 3, page 349

c.

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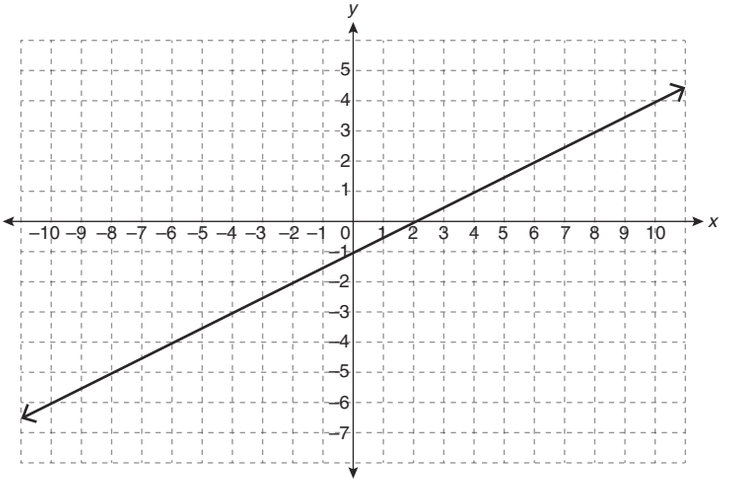
Lesson 7.1: Slope-Intercept Form of a Linear Equation

Explore Your Understanding Assignment

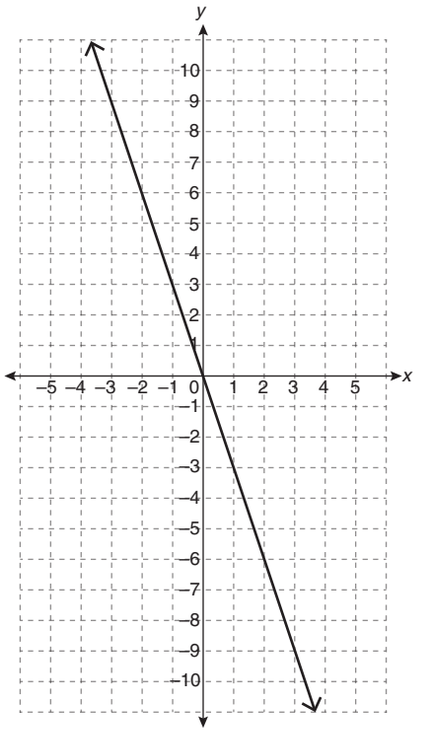
(2) 1. State the slope and y-intercept of the graph of $9 - x = 2y$.

2. State the equation, in slope-intercept form, of each of the following graphs of linear relations. Explain how the equation was determined.

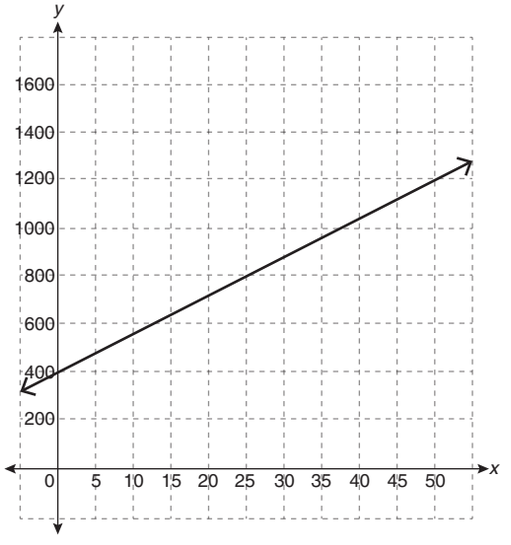
(1) a.



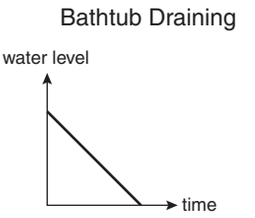
(1) b.


y
x
10
9
8
7
6
5
4
3
2
1
−5 −4 −3 −2 −1 0 1 2 3 4 5
−1
−2
−3
−4
−5
−6
−7
−8
−9
−10

(1) c.

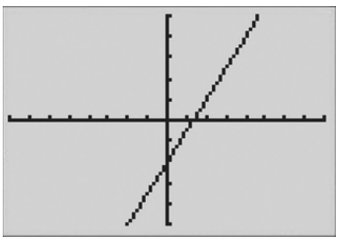

y
x
1600
1400
1200
1000
800
600
400
200
0 5 10 15 20 25 30 35 40 45 50

(1) 3. The water level of a bathtub, as it drains, can be modelled by a linear relation. Describe what the vertical-axis intercept on the graph of this relation represents in this scenario.



(2) 4. The graph of the relation $y = mx + 35$ passes through the point (8,–77). Determine the value of m.

(1) 5. Arianna used a graphing calculator to graph a linear relation. She then used this image to show the graph of the relations to her peers. By itself, the graph is hard to interpret. What additional information could Arianna have included, either on or with her graph, to make it easier to interpret?



6. Tim has developed a money-saving strategy that uses the formula $S = 450 + 100r$.

(1) a. Give a possible interpretation of Tim's strategy.

(1) b. What do the slope and S-intercept of the graph of the relation represent, based on the interpretation from part a.?

(1) c. Using the interpretation from part a., what will have to happen for Tim to save $1 250?

(1) d. If Tim plans to stop his savings plan once he has accumulated $1 250, what are the domain and range of this relation?

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