Mathematics 10 F&PC – Pearson Textbook

Textbook

This course uses the textbook "*Foundations and Pre-calculus Mathematics 10* " ISBN 10: 0-321-70734-6 by Pearson Canada. 1-800-361-6128. Price is about $ 85.

Curriculum Outline

Chapter 1 Measurement	**Chapter 2 Trigonometry**	**Chapter 3 Factors and Products**
Chapter 4 Roots and Powers	**Chapter 5 Relations and Functions**	**Chapter 6 Linear Functions**
Chapter 7 Systems of Linear Equations		

Structure

This course is generally designed with the self-paced student in mind. It is based on a mastery system in which the student must obtain an 80% on the tests. Each chapter has two versions in which the student has a chance to reach and or exceed the 80% mastery level.

Evaluation

There are 7 chapter tests which account for 70% of the final mark. There are 3 cumulative tests which account for 30% of the final mark.

Composition

The course is made up of:
7 Chapters Outlines,
7 Chapter Tests each with an A and a B version (14 tests), Plus (14 tests) Answer Keys
3 Cumulative Tests, Plus (3 Cumulative Tests) Answer Keys,
All Answer Keys have a suggested marking scheme,
All files are put on disk in pdf and MS Word,
A perpetual license for your school.
The entire paper course is placed in a binder along with the disk and shipped as one unit.

Cost: $ 450.00. ***See Ordering on website.***

Mathematics 10 Foundations and Pre Calculus

Record Chart

Name: **Start Date:**

	Chapter	Topic	Test A	Test B	Average	Date
	1	Measurement				
	2	Trigonometry				
	Cumulative Test 1					
	3	Factors and Products				
	4	Roots and Powers				
	Cumulative Test 2					
	5	Relations and Functions				
	6	Linear Functions				
	7	Systems of Linear Equations				
	Cumulative Test 3					

Course Evaluation

Course Evaluation	Total Marks	Percent	Value	Result
Tests (7)			70%	
Cumulative Tests (3)			30%	

Final Mark

Math 10 Foundations & Pre-Calculus

Textbook: Foundations and Pre-calculus by Pearson Canada

Chapter 5 Relations and Functions

Goal: The goal of this chapter is to familiarize you with relations and functions. A relation is a diagram, equation, or list that defines a specific relationship between groups of elements. A function is a special kind of relation.

Objectives: During this chapter you will:

*Investigate the connection between set, element, and relation.
*Examine the properties of functions.
* Create graphs that represent different situations.
* Examine function notation in a variety of situations.
* Investigate characteristics of linear relations to graphing.
* Determine an acceptable range of values for a function.
* Solve problems that utilize rate of change.

What Needs to be Done:

Chapter 5 has 7 sections: 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, and 5.7. Each section in chapter 5 may have an accompanied video to enhance your understanding of the section material. There may be more than one video for a section.
Use the section-numbered videos below as they correspond in the Practice Guide below to help you with your understanding.

Video Selections:

5.1 **https://www.youtube.com/watch?v=hM_iObXeno0**
Mathematics Lesson: Relations (Simplifying Math) (6:46 min)

5.2 **https://www.youtube.com/watch?v=HebWwBta1cs**
Intro to functions (4:50 min).

5.2 **https://www.youtube.com/watch?v=m78DbI2xaiI**
3.2 Video (4b) - Using function notation to find and interpret output values" (1:12 min).

5.2 **https://www.youtube.com/watch?v=kODCjH1HU2Y**
"3.2 Video (3d) - Using function notation to find input values"(1:12 min).

5.3 **https://www.youtube.com/watch?v=SbxL3ViOEbU**

Interpreting Graphs of Functions **(**6: 52 min).

5.3 **https://www.youtube.com/watch?v=hyOqyilCOQk**
Describing situations from graphs 6.5 gr**"** (10:18 min).

5.5 **https://www.youtube.com/watch?v=5Z8DaZPJLKY**
Ex 1: Use the Vertical Line Test to Determine if a Graph Represents a Function"
(2:56 min).

5.5 **https://www.youtube.com/watch?v=0M3Dv106YBY**
Domain and Range of Relations from a Graph (18:02 min)

5.6 **https://www.youtube.com/watch?v=jNmFiQx6Vx0**
Determining if a table of values represents a linear relation (2:34 min)

5.6 **https://www.youtube.com/watch?v=ufOF37G7uCQ**
Module B How do you determine if you have a linear equation (2:50 min)

5.6 **https://www.youtube.com/watch?v=2h_Nx3O3sM0**
determining the rate of change from a graph (4:56 min)

5.7 **https://www.youtube.com/watch?v=lEkex7L-bc8**
Problem Solving with Linear Functions (27:37 min)

Chapter 5 Practice Guide: (Check Mark as You Complete)

✓	Page	
	254-255	Glance over.
	256-258	Read over and define the new terms. **Watch video "Mathematics Lesson: Relations (Simplifying Math) (6:46 min)**
	259-261	Go over Examples 1, 2, and 3.
	262-263	Under "Exercises" try # 3-7,10, 12, and 13.
	264-265	Read over and define the new terms. **Watch video "Intro to functions" (4:50min).**
	266-268	Go over Examples 1-2. Give an example of function notation.
	268-270	Read Page 268 and **watch video"3.2 Video (4b) - Using function notation to find and interpret output values" (1:12 min).** Read Page 269 and **watch video "3.2 Video (3d) - Using function notation to find input values"(1:12 min).** Go over Example 3.
	270-273	Under "Exercises" try # 4-8, 9a,11, 12, 13, 14ac, 15, 16, 17, 19, and 21.
	274	Read over "Checkpoint 1".
	276-278	Read over. Go over Example 1. **Watch video "Interpreting graphs of Functions" (6:52 min).**
	278-279	Go over Example 2. **Watch video "Describing situations from graphs 6.5 gr" (10:18 min).**
	280	Go over Example 3.
	281-283	Under "Exercises" try # 3-6, 8, 10, 12, 14, 17, and 18.
	284	Read over.
	286	Under "Assess Your Understanding" try # 1 and 2.
	288-289	Read over and define the Vertical Line Test.
	290	Go over Examples 1. **Watch video "Ex 1: Use the Vertical Line Test to Determine if a Graph Represents a Function" (2:56 min).**
	291-293	Go over Example 2. **Watch video "Domain and Range of Relations from a Graph" (18:02 min).** Go over Examples 3-4.
	294-297	Under "Exercises" try # 4, 6-13, 15, 17, 19, 21, and 22.
	298	Glance over "Checkpoint 2"
	299	Under "Assess Your Understanding" try # 1 - 3.
	302	Read over. Define rate of change and linear relation.
	303	Go over Example 1. **Watch video "Determining if a table of values represents a linear relation" (2:34 min)**
	304	Go over Example 2. **Watch video "Module B How do you determine if you have a linear equation" (2:50 min)**
	305	Go over Example 3.

☐	306-307	Go over Example 4. **Watch video "determining the rate of change from a graph" (4:56 min)**
☐	308-310	Under "Exercises" try # 3-5, 6i,iv, v, 7, 8, 11, 13, 14, 16-18, and 20.
☐	311	Read over.
☐	313	Read over.
☐	314-315	Go over Examples 1-2 and define any new terms.
☐	316-317	Go over Examples 3-4. **Watch video "Problem Solving with Linear Functions" (27:37 min).**
☐	252-253	Under "Exercises" try # 4, 5, 6ac, 7-9, 11, 13, 15ac, 17, and 19.
☐	324-325	Read over.
☐	326-328	Under "Review" try # 1, 3ac, 4ac, 6, 8, 9, 11, 13, 15, 17, and 18.
☐	329	Under "Practice Test" try # 1-5.

Since this course is based on the mastery system, you need to reach 80% in the test before you can proceed to the next chapter, so review your problems and when you are ready, ask your instructor for the test.

Math 10 F&PC Chapter 2 Test A: Trigonometry

Name_____ Date _____ _____

45

Marks

1. Match the descriptions on the bottom with the corresponding letter to the terms on the left.

5 _____Solving a triangle

_____ Trigonometry

_____ Angle of depression

_____ Angle of inclination

_____ Tangent ratio

_____ Primary trigonometric ratios

_____ Sine ratio

_____ Direct measurement

_____ Angle of elevation

_____ Indirect measurement

A. It is the acute angle that a line segment makes with the horizon.
B. It is determined by the length of the opposite side divided by the length of the adjacent side.
C. A measuring instrument to determine a length or an angle in a polygon.
D. It is mathematical reasoning to calculate a length or an angle.
E. The branch of mathematics that deals with the relations between the sides and angles of triangles.
F. These are tangent, sine, and cosine.
G. It is determined by dividing the length of the opposite side by the length of the hypotenuse.
H. It is determined by dividing the length of the adjacent side by the length of the hypotenuse.
I. It is the angle between the horizontal and the line of sight from an observer.
J. It means to determine the measures of all angles and sides of a triangle.
K. It is the angle below the horizon between the horizontal and the line of sight from an observer.

2. The following lists some elements and their atomic number:
(Sodium, 11). (Krypton, 36), (Helium, 2), (Gold, 79), (Silver, 47), and (Copper, 29),
For each association use the data to represent a relation in different ways.
(a) As a table of the elements alphabetically
(b) Describe the relation in words.
(c) Represent the above relation as an arrow diagram in alphabetical order and increasing value of the atomic number.

6

ELEMENT	ATOMIC NUMBER

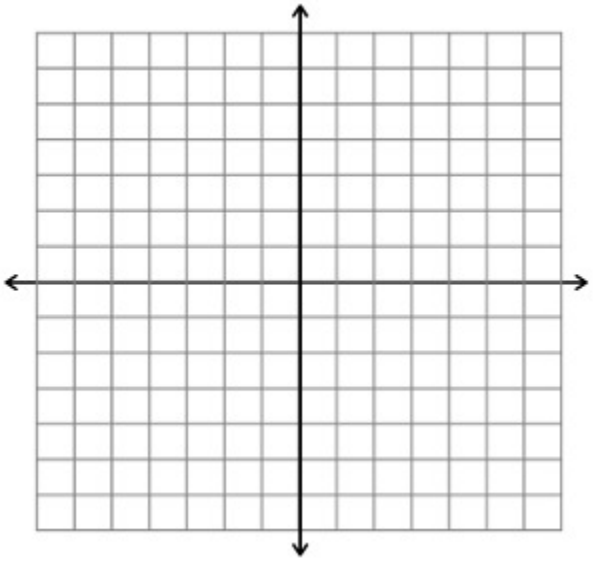
3. The table shows the mass of a given number of Loonies.
(a) Explain why or why not that the relation is a function.
(b) Identify the dependent and independent variables and the reason why.
(c) Write out the domain and range.

5

NUMBER OF LOONIES	MASS OF LOONIES in grams
0	0
1	6.92
2	13.84
5	34.60
10	69.20
15	103.80
20	138.40

10. Graph the following equation. $y = 3x - 5$

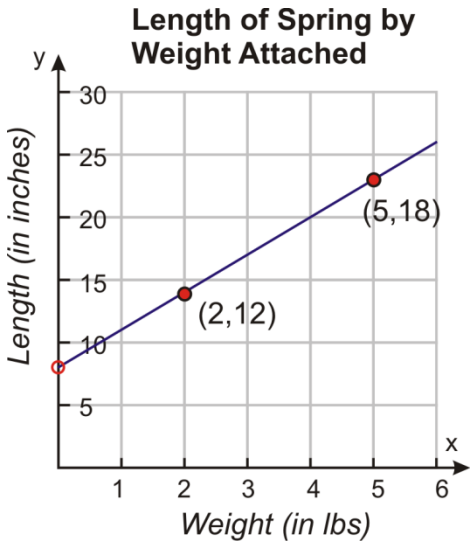
3



11. The following graph represents the length of a spring when certain weights are added.

4

(a) Write an equation to describe this graph.
(b) Use the equation to calculate the value of y when x = 4.75.
(c) Predict the length of the spring when the weight is 7.25.



3. An electronics store offers its sales people two options for their wages. Their Plan A is $800.00 per month plus a 4% commission on total sales. Their Plan B is $950.00 per month plus a 3% commission on total sales. The linear system that models these plans is as follows.

8 $W = 800 + 0.04c$ and
$W = 950 + 0.03c$

(a) Graph this linear system.
(b) Determine the monthly sales that the employee needs to make in order to have the same wages in both plans.
(c) Under what conditions is Plan A more profitable?