

Math 12 Pre-Calculus LG 1

TRANSFORMATIONS – PART A



INTRODUCTION:

This learning guide will explore the relationship between a function and its transformed graph. Check out pages 4-5.



LEARNING GUIDE EXPECTATIONS:

On the completion of this learning guide you will be able to:

- 1) understand the effects of horizontal and vertical translations on the graphs of functions and their related equations.
- 2) understand the effects of horizontal and vertical stretches on the graphs of functions and their related equations.
- 3) understand the effects of reflections on the graphs of functions and their related equations.



EVALUATION:

Complete the LG 1 assessment quiz in the test centre.



RESOURCES NEEDED:



Math 12 Pre-Calc Text



THSS Math 12 Pre-Calc Learning Guides.



www.thssmath.com

LEARNING ACTIVITIES:



Expectation #1: Understand the effects of horizontal and vertical translations on the graphs of functions and their related equations.



1. [Watch and take notes on instructional video on Horizontal & Vertical Translations.](#)



2. In the textbook, complete the Investigate Vertical and Horizontal Translations activity #1-9 on pages 6 and 7.
3. In the textbook, read pages 7 and 8.

4. Work through Examples 1 – 3 on pages 8 – 11 and complete the corresponding “Your Turn” questions.



5. Read Key Ideas on page 12. In your math journal, explain what changes need to be made to a function $y = f(x)$ to move the graph up or down and what changes need to be made to move the graph left or right. Use a graph of a function ($y = x^2$ would be a good choice) to illustrate.



6. In the textbook, complete pages 12-15 #3, 4, 5, 9, 10, 11, 17, 19, C3.



Expectation #2: Understand the effects of horizontal and vertical stretches on the graphs of functions and their related equations.



Expectation #3: Understand the effects of reflections on the graphs of functions and their related equations.



1. [Watch and take notes on instructional video on Stretches of Functions.](#)



2. [Watch and take notes on instructional video on Reflections of Functions.](#)



3. In the textbook, complete the Investigate Reflections and Stretches of Functions activity #1-11 on pages 16-18.

4. Read Link the Ideas on page 18 and Key Ideas (the first two rows) on page 27. Work through Example 1 on pages 18-20 and then complete Your Turn on page 20.



5. In your journal, describe what changes need to be made to the equation to produce a reflection in the x and y axis. Use an example to illustrate.



6. In the textbook, read Vertical and Horizontal Stretches on page 20. Work through Examples #2-4 on pages 21-27 and complete the corresponding Your Turn questions.



7. Read Key Ideas (last 2 rows) on page 27. In your math journal, describe what changes need to be made to the equation to produce a vertical expansion or compression and a horizontal expansion or compression.



8. In the textbook, complete pages 28 – 31 #1, 2, 3, 4, 5, 7, 9, 10, 14, 15.

REVIEW AND CHALLENGE



1. In the textbook, complete Chapter 1 Review pages 56 - 57 #1-8.

2. Complete Chapter 1 Practice Test pages 58-59 #1 – 8, 13, 14.

PRACTICE QUIZZES

[Practice Test #1](#)

[Practice Test #2](#)

[Practice Test #3](#)

[Practice Test #4](#)

Key Terms: Transformation, mapping, translation, reflection, invariant point, stretch (expansion & compression).