Math 12 Pre-Calculus LG 16

RATIONAL FUNCTIONS

INTRODUCTION:

Lots of real world situations can be modeled using functions and equations. Check out pages 426 – 427 and 428 – 429.

LEARNING GUIDE EXPECTATIONS:

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

1) Graph, analyze and compare rational functions using transformations and technology.
2) Determine whether graphs have an asymptote or a point of discontinuity for a non-permissible value.
3) Solve rational equations.

EVALUATION:

Write the LG 16 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: Graph, analyze and compare rational functions using transformations and technology.

1. Watch and take notes on instructional video on Graphing Rational Functions.
2. In the textbook, read Link the Ideas on page 432.
3. Work through Example 1 on pages 432 - 433 and complete the "Your Turn" question.
4. Read the information at the top of page 434.

5. Work through Examples 2-5 on pages 434 – 441 and complete the corresponding Your Turn questions.


6. Read Key Ideas on page 441. In your math journal, define a rational function. Describe how to find the non-permissible values, the end behaviour and the behaviour near the non-permissible values, and the equations of the vertical and horizontal asymptotes.


7. In the textbook, complete pages 442 - 445 #1 – 4, 6 – 9, 13 – 15.


Expectation #2: Determine whether graphs have an asymptote or a point of discontinuity for a non-permissible value.


1. Watch and take notes on instructional video on Analyzing Rational Functions.


2. Complete Investigate Analyzing Rational Functions on page 446.
3. Read Link the Ideas on page 447.
4. Work through Examples 1 – 3 on pages 447 - 450 and complete the corresponding Your Turn questions.


5. Read Key Ideas on page 451. In your journal, describe how to find the x-intercepts, points of discontinuity and vertical asymptote of a rational function. Include an example to illustrate.


6. In the textbook, complete pages 451 - 456 #1 -13.


Expectation #3: Solve rational equations.


1. Watch and take notes on instructional video on Solving Rational Equations.


2. Read Link the Ideas on page 458.
3. Work through Examples 1-4 on pages 459 - 464 and complete the corresponding Your Turn questions.


4. Read Key Ideas on page 465. In your journal, describe how to solve a rational equation algebraically and graphically. Use an example of each to illustrate.


5. In the textbook, complete pages 465 – 467 #1 – 9, 11, 13.

REVIEW AND CHALLENGE


1. In the textbook, complete Chapter 9 Review pages 468 - 469 #1 – 11.
2. Complete Chapter 9 Practice Test pages 470 – 471 #1 – 16.

Key Terms: rational function, point of discontinuity, asymptote.

PRACTICE QUIZZES

Practice quiz #1
Practice quiz #2
Practice quiz #3
Practice quiz #4