Lesson 12: End Behavior of Rational Functions

Classwork

Opening Exercise

Analyze the end behavior of each function below. Then choose one of the functions and explain how you determined the end behavior.

Exercises

Determine the end behavior of each rational function below.

Problem Set

1. Analyze the end behavior of both functions.
   1. .
   2. .
   3. .
   4. .
   5. .
2. For the following functions, determine the end behavior. Confirm your answer with a table of values.
   1. .
   2. .
   3. .
   4. .
   5. .
3. For the following functions, determine the end behavior.
   1. .
   2. .
   3. .
   4. .
   5. .
4. Determine the end behavior of each function.
   1. .
   2. .
   3. .
   4. .
   5. .
   6. .
5. Consider the functions and for natural numbers .
   1. What are the values of and for ?
   2. What is the end behavior of as .
   3. What is the end behavior of as .
   4. Make an argument for the end behavior of as .
   5. Make an argument for the end behavior of as .
6. Determine the end behavior of the functions.

   2. ,
   3. ,
   4. ,.
7. Use a graphing utility to graph the following functions and . Explain why they have the same graphs. Determine the end behavior of the functions and whether the graphs have any horizontal asymptotes.
   1. .
   2. .