

Rational Functions

Curriculum Expectations

By the end of this course, students will:

- determine key features of the graphs of rational functions that are the reciprocals of linear and quadratic functions, and make connections between the algebraic and graphical representations of these rational functions
- determine key features of the graphs of rational functions that have linear expressions in the numerator and denominator, and make connections between the algebraic and graphical representations of these functions
- sketch the graph of a simple rational function using its key features, given its algebraic representation
- determine the connection between the real roots of a rational equation and the x -intercepts of the graph of the corresponding rational function, and describe this connection
- solve simple rational equations in one variable algebraically, and verify solutions
- solve problems involving applications of simple rational functions and equations
- explain, for simple rational functions, the difference between the solution to an equation in one variable and the solution to an inequality in one variable, and demonstrate that given solutions satisfy an inequality
- determine solutions to simple rational inequalities in one variable by graphing the corresponding functions and identifying intervals for which x satisfies the inequalities
- solve problems involving average and instantaneous rates of change, including problems arising from real life

Schedule of Topics

Day	Topic	Reading	Homework	Questions?
1	Reciprocals of Linear Functions	§3.1	p.153 #1-3,5-9	
2	Reciprocals of Quadratic Functions	§3.2	p.165 #2-5,7-9,11,13,14,16	
3	Rational Functions: Ratios of Linear Func.	§3.3	p.174 #1-12	
4	Oblique Asymptotes	None	Worksheet	
5	Solving Rational Inequalities	§3.4 ex.3	p.184 #4-8	
6		§3.4 ex.4	p.184 #9-13,15,16	
7	Applications of Rational Functions	§3.5	p.189 #1-6,10,11,14	
8	Unit Review	None	pp.192-195	

Assessment and Evaluation

Quiz/Test/Task	Date	K	A	T	C

Skills Checklist

At the end of this strand, I am able to:

- | | | | |
|--|------------|-----------|------------|
| • identify if a function is the reciprocal of a linear function | [] Always | [] Often | [] Seldom |
| • recognize/state key properties of reciprocals of linear functions | [] Always | [] Often | [] Seldom |
| • describe the end behaviour of reciprocals of linear functions | [] Always | [] Often | [] Seldom |
| • determine any vert/horz asymptotes for reciprocals of linear func. | [] Always | [] Often | [] Seldom |
| • state the domain and range of reciprocals of linear functions | [] Always | [] Often | [] Seldom |
| • identify if a function is the reciprocal of a quadratic function | [] Always | [] Often | [] Seldom |
| • recognize/state key properties of reciprocals of quadratic func. | [] Always | [] Often | [] Seldom |
| • describe the end behaviour of reciprocals of quadratic functions | [] Always | [] Often | [] Seldom |
| • determine any vert/horz asymptotes for reciprocals of quad. func. | [] Always | [] Often | [] Seldom |
| • state the domain and range of reciprocals of quadratic functions | [] Always | [] Often | [] Seldom |
| • predict the “shape” of a reciprocal of a quadratic function | [] Always | [] Often | [] Seldom |
| • identify a rational function w/ a linear numerator/denominator | [] Always | [] Often | [] Seldom |
| • determine any vertical/horizontal asymptotes for rational func. | [] Always | [] Often | [] Seldom |
| • determine equations of oblique asymptotes for rational func. | [] Always | [] Often | [] Seldom |
| • identify/describe transformations applied to rational functions | [] Always | [] Often | [] Seldom |
| • sketch graphs of simple rational functions | [] Always | [] Often | [] Seldom |
| • determine equations of simple rational functions | [] Always | [] Often | [] Seldom |
| • solve rational equations algebraically | [] Always | [] Often | [] Seldom |
| • solve rational inequalities using cases | [] Always | [] Often | [] Seldom |
| • solve rational inequalities using intervals | [] Always | [] Often | [] Seldom |
| • solve problems involving rational functions | [] Always | [] Often | [] Seldom |

Student Comments

Parent/Guardian Comments

Teacher Comments