

Functions and Transformations

Curriculum Expectations

By the end of this course, students will:

- explain the meaning of the term function, and distinguish a function from a relation that is not a function
- represent functions using function notation, given their equations, tables of values, or graphs, and substitute into and evaluate functions
- explain the meanings of the terms *domain* and *range*, and describe the domain and range of a function appropriately
- determine, through investigation using technology, the roles of the parameters a , b , c , and d in functions of the form $y = af(b(x - c)) + d$, and describe these roles in terms of transformations
- sketch graphs of, and state the domain and range of, transformed functions
- relate the process of determining the inverse of a function to their understanding of reverse processes
- determine the algebraic or graphical representation of the inverse of a function, and make connections between the graph of a function and the graph of its inverse
- determine the relationship between the domain and range of a function and the domain and range of the inverse relation, and determine whether or not the inverse relation is a function

Schedule of Topics

Day	Topic	Homework	Questions?
1	Domain and Range	Worksheet	
2	Function Notation	p.22 #1,2,4-8,11,14-16,21	
3	Parent Functions	Worksheet	
4	Transformations: Translations	p.102 #2-6,8-14,16	
5	Transformations: Stretches and Reflections	p.119 #2,4,6,7abcd,9,10	
6	Transformations: Combinations	p.129 #1-5,7,10-12,13*	
7	Determining Equations of Functions	Worksheet	
8	Inverse of a Function	p.138 #1ab,3-5,7abc,10-12,15,16,18-22	
9	Review: Functions and Transformations	p.70 #1-4, p.72 #1-9, p.142 #7-16	

Assessment and Evaluation

Quiz/Test/Task	Date	K	A	T	C

Skills Checklist

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

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| • Determine if a given relation is also a function, given its graph | [] Always | [] Often | [] Seldom |
| • Determine if a given relation is also a function, given its equation | [] Always | [] Often | [] Seldom |
| • Determine the domain and range of a function, given its graph | [] Always | [] Often | [] Seldom |
| • Determine the domain and range of a function, given its equation | [] Always | [] Often | [] Seldom |
| • Express the domain and range of a function using proper notation | [] Always | [] Often | [] Seldom |
| • Express a function's equation using function notation | [] Always | [] Often | [] Seldom |
| • Identify basic properties of specific parent functions | [] Always | [] Often | [] Seldom |
| • Identify transformations to a parent function, given its graph | [] Always | [] Often | [] Seldom |
| • Identify transformations to a parent function, given its equation | [] Always | [] Often | [] Seldom |
| • Write a function's equation, given a description of transformations | [] Always | [] Often | [] Seldom |
| • Write a function's equation, given its graph | [] Always | [] Often | [] Seldom |
| • Graph a function, given a description of transformations | [] Always | [] Often | [] Seldom |
| • Graph a function, given its equation | [] Always | [] Often | [] Seldom |
| • Determine the inverse of a function by graphing | [] Always | [] Often | [] Seldom |
| • Determine the inverse of a function, given its equation | [] Always | [] Often | [] Seldom |
| • State the domain and range of a function's inverse | [] Always | [] Often | [] Seldom |
| • Determine whether the inverse of a function is also a function | [] Always | [] Often | [] Seldom |

Student Comments

Parent/Guardian Comments

Teacher Comments