

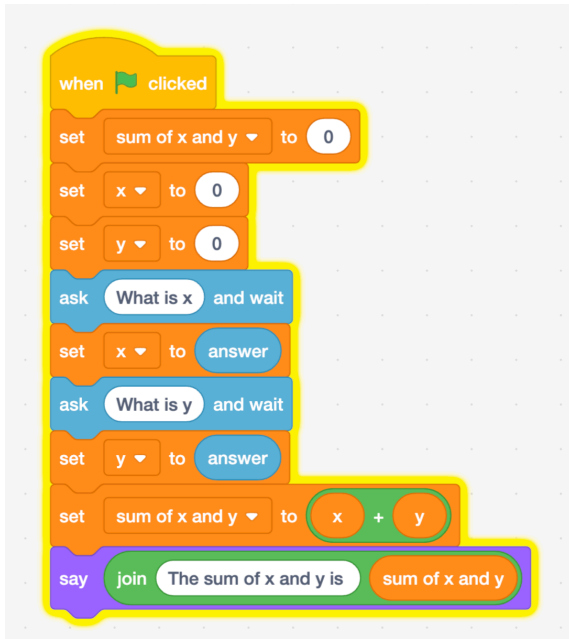
Coding Assignment #1 – Powers

Learning Goals: apply coding skills to represent mathematical concepts and relationships related to powers.

Success Criteria: be able to create a program using Scratch to simplify and evaluate operations with powers.

Task 1: Read this block of code. What do you think it does? Explain in detail then try it using the link to see if you are right.

<https://scratch.mit.edu/projects/789449894>



What does the program do?

Task 2: Write pseudocode that would tell a program how to evaluate a power based on user inputs for the base and exponent of the power.

Pseudo code:

MTH1W

Task 3: As a class, create a program in Scratch that evaluates a power based on user inputs for the base and exponent of the power.

Task 4: In groups, fix this program so that it works properly with negative exponents. Start by writing down pseudo code for how the code needs to be altered.

Pseudo code:

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Task 5: Try out the following program that explains the product rule of powers. Press 'See Inside' and analyze the code and backdrops to get an idea of how it works.

$$(x^a)(x^b) = x^{a+b}$$

<https://scratch.mit.edu/projects/792262944>

Task 6: Write a program in Scratch that uses and explains the quotient rule of powers. Start by writing your pseudo code here. Then write your program in Scratch and share your link with your teacher.

$$\frac{x^a}{x^b} = x^{a-b}$$

Pseudo code:

Category	Level 1	Level 2	Level 3	Level 4
Knowledge and Understanding Demonstrates knowledge and understanding of powers, exponent rules, and block coding.	demonstrates limited understanding of content	demonstrates some understanding of content	demonstrates considerable understanding of content	demonstrates thorough understanding of content
Thinking Use of planning using pseudo code. Shows critical/creative thinking when designing program.	uses planning skills with limited effectiveness	uses planning skills with some effectiveness	uses planning skills with considerable effectiveness	uses planning skills with a high degree of effectiveness
Communication Able to use block code to create a program that clearly communicates knowledge of exponent rules.	expresses and organizes ideas and information with limited effectiveness	expresses and organizes ideas and information with some effectiveness	expresses and organizes ideas and information with considerable effectiveness	expresses and organizes ideas and information with a high degree of effectiveness
Application Transfer knowledge and skills of how to use coding to evaluate powers to create a new program that applies the quotient rules of powers.	transfers knowledge and skills to new contexts with limited effectiveness	transfers knowledge and skills to new contexts with some effectiveness	transfers knowledge and skills to new contexts with considerable effectiveness	transfers knowledge and skills to new contexts with a high degree of effectiveness

Comments: