

PYRAMID SUM Puzzle

LOGARITHMIC EQUATIONS Pyramid Puzzle

O

$$\log_1(5x) = \log_1 2 + \log_1(2x+5)$$

12

G

$$\log_6(-2x) = \log_6(5x+7)$$

-4

M

$$\log_3 x + \log_3(x+1) = \log_3 12$$

-1

$\log_4 x$

-2

K

$$\log_2(x+7) = 2 \cdot \log_2(x+5)$$

8

N

$$\frac{1}{2} \cdot \log 49 = \log(x-3)$$

-5

H

$$2 \cdot \log_3(2x) - \log_3 4 = 4$$

7

E

$$\log_{13} 13 + \log_{13}(x+2) = 2$$

9

B

$$\log_2(2x) - \log_2 9 = 3$$

13

LOGARITHMIC Equations

Created by: ALL THINGS ALGEBRA®

LOGARITHMIC EQUATIONS

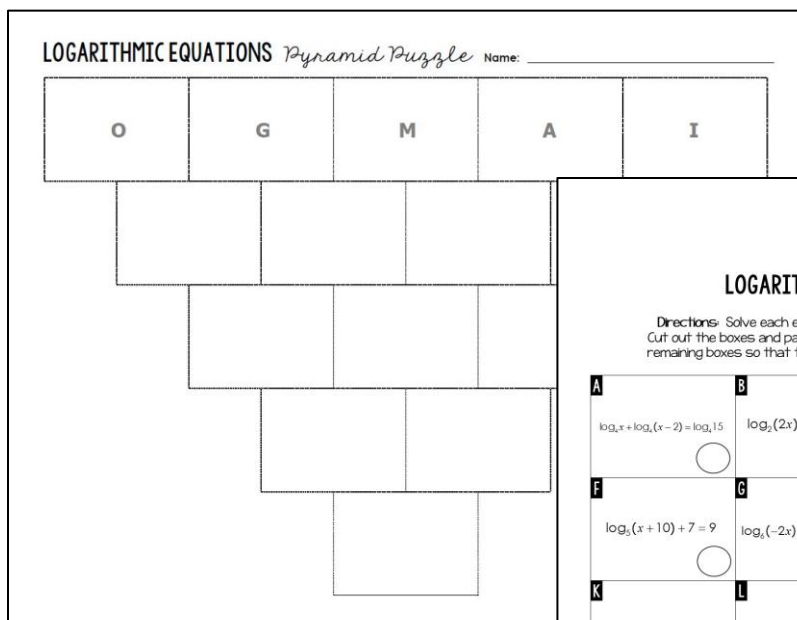
Pyramid Sum Puzzle

Objective: To practice solving logarithmic equations, including those that require properties of logarithms to solve. Some equations may result in a quadratic equation. Extraneous solutions are possible. This activity was created for an Algebra 2 level class.

Activity Directions:

- 1) Print enough templates and equations for each student (pages 3-4 of this document). I like to do the template on colored paper and the equations on white paper to make the final product pop!
- 2) Students solve each problem and place the solutions in the circles. I recommend having them show all work on a separate sheet of notebook paper.
- 3) Students cut the boxes out and arrange the top row according to the letters on the template. Then, they must arrange the remaining boxes so that each solution is the sum of the two solutions directly above it. Paste all pieces down.

An answer key is provided on page 5. This assignment is VERY easy to grade with the box letters and solutions!



LOGARITHMIC EQUATIONS *Pyramid Puzzle*

Directions: Solve each equation on a separate sheet of paper. Record your answers in the circles. Cut out the boxes and paste O, G, M, A, and I on the top row (in that order) on the template. Paste the remaining boxes so that the solution to each problem is the sum of the two solutions directly above it.

A $\log_x x + \log_x(x-2) = \log_x 15$ <input type="text"/>	B $\log_2(2x) - \log_2 9 = 3$ <input type="text"/>	C $\log 2 + \log x = 1$ <input type="text"/>	D $\log_3(x+1) = 2$ <input type="text"/>	E $\log_3 13 + \log_3(x+2) = 2$ <input type="text"/>
F $\log_5(x+10) + 7 = 9$ <input type="text"/>	G $\log_6(-2x) = \log_6(5x+7)$ <input type="text"/>	H $2 \cdot \log_3(2x) - \log_3 4 = 4$ <input type="text"/>	I $\log_6(-3x) - \log_6 3 = 1$ <input type="text"/>	J $4 \cdot \log_{256}(x-5) = 2$ <input type="text"/>
K $\log_2(x+7) = 2 \cdot \log_2(x+5)$ <input type="text"/>	L $\log x + \log(3x-5) = \log 2$ <input type="text"/>	M $\log_3 x + \log_3(x+1) = \log_3 12$ <input type="text"/>	N $\frac{1}{2} \cdot \log 49 = \log(x-3)$ <input type="text"/>	O $\log_3(5x) = \log_3 2 + \log_3(2x+9)$ <input type="text"/>

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