

## Ready, Set, Go!

## Ready

Topic: Equivalent Equations



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The pairs of equations below are equivalent. Determine what was done to the first equation in order to obtain the second equation. (For example, everything multiplied by 5 or Multiplicative Property of Equality) If more than one operation was performed please indicate the operations and the order they were performed.

1.	$x + y = 5$	2.	$4x + 3y = 12$	3.	$6x + 4y = 20$
	$3x + 3y = 15$		$x + \frac{3}{4}y = 3$		$y = -\frac{3}{2}x + 5$

Determine whether or not the pairs of equations below are equivalent. If equivalent state the operations used to create the second from the first. If not equivalent show why not.

4.	$12x + 9y = 21$	5.	$2x + 5y = 10$	6.	$54x + 42y = 90$
	$4x + 3y = 7$		$y = \frac{2}{5}x + 10$		$9x + 7y = 15$



## Set

Topic: Matrix Multiplication

7. The equipment manager for the school athletics department is attempting to restock some of the needed uniform and equipment items for the upcoming seasons of baseball and football. It has been determined based on current levels of inventory and the number of players that will be returning that more socks, pants and helmets will be needed. The equipment manager has organized the information in the matrix below.

$$\begin{array}{l} \text{Baseball} \\ \text{Football} \end{array} \begin{bmatrix} \text{socks} & \text{pants} & \text{helmets} \\ 13 & 15 & 7 \\ 24 & 45 & 20 \end{bmatrix}$$

The school has contracted with two supply stores in the past for equipment needs. The matrix below shows how much each store charges for the needed items.

$$\begin{array}{l} \text{Cost per pair of socks} \\ \text{Cost per pair of pants} \\ \text{Cost per helmet} \end{array} \begin{array}{cc} \text{Big Sky Sportingoods} & \text{Play it Forever} \\ \left[ \begin{array}{cc} 3.50 & 3.00 \\ 35.00 & 40.00 \\ 22.00 & 45.50 \end{array} \right] \end{array}$$

### Total Costs Matrix

$$\begin{array}{l} \text{Baseball} \\ \text{Football} \end{array} \begin{array}{cc} \text{Big Sky Sportingoods} & \text{Play it Forever} \\ \left[ \begin{array}{cc} a & b \\ c & d \end{array} \right] \end{array}$$

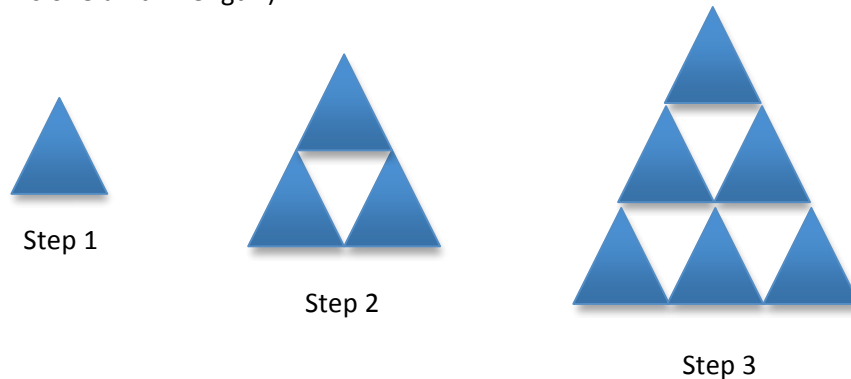
8. Calculate the values of  $a$ ,  $b$ ,  $c$ , and  $d$  in the “Total Costs Matrix” above.
9. Explain, in detail, how you would use the numbers in the first two matrices above to obtain the values for the “Total Costs Matrix”.



## Go

Topic: Representing visual patterns of change with equations, finding patterns

Create tables and equations for each attribute of the visual pattern below. If you are unable to create an equation then state the pattern you notice. (All triangles are equilateral and the side length of the triangle in step 1 is one unit in length.)



10. The width of the large triangle with respect to the Step number.
11. The number of small triangles with side length of one in the large triangle with respect to the Step number.
12. The perimeter of the large triangle with respect to the Step number.
13. The number of 60-degree angles in the figure with respect to the Step number.
14. The number of white triangles in the large triangle with respect to the Step number.



Need help? Check out these related videos.

Multiplying matrices <http://www.khanacademy.org/math/algebra/algebra-matrices/v/matrix-multiplication--part-1>

Patterns and equations <http://www.khanacademy.org/math/algebra/ck12-algebra-1/v/patterns-and-equations>

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