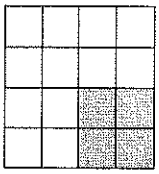
NAME_____

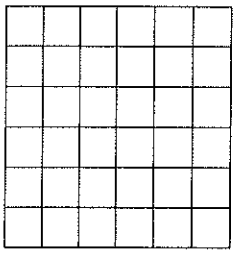
Investigation:

Finding Equal Ratios

The figure at the right shows a 4 by 4 square on graph paper with ¼ of the grid blocks shaded.



1. **Use the 6 by 6 square at the right and shade in ¼ of the blocks.**



2. **Use graph paper if necessary to complete the table below. Relate the number of shaded blocks to the total blocks needed to keep the ratio of $\frac{\text{shaded}}{\text{total}}$ the same.**

Shaded Blocks	4	9	16	25	
Total Blocks	16	36			144
Ratio $\frac{\text{shaded}}{\text{total}}$	$\frac{4}{16} = \frac{1}{4}$	$\frac{9}{36} = \frac{1}{4}$			

Proportion:

Proportions

Take a look at the proportions below...

$\frac{4}{16} = \frac{1}{4}$ $\frac{8}{20} = \frac{2}{5}$ $\frac{2}{3} = \frac{6}{9}$

1. **What pattern do you notice about the "cross products" in each proportion?**

2. **Write a proportion of your own by finding two equivalent fractions...**

3. **Test the pattern you found in #1 with the proportion that you wrote in #2. Does the pattern still hold?**

Multiplication Property of Equality:

We can use this property to determine if a pair of ratios form a proportion (if the fractions are equal).

Do each of the following ratios form a proportion?

1. $\frac{9}{20} = \frac{2}{5}$ 2. $\frac{3}{7} = \frac{9}{21}$ 3. $\frac{11}{5} = \frac{22}{9}$