

Looking at a Pattern in More Than One Way

Build this pattern with tiles

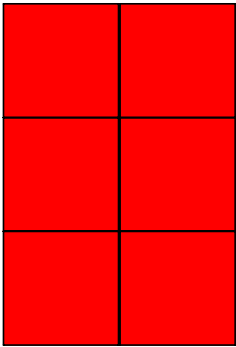


Figure 1

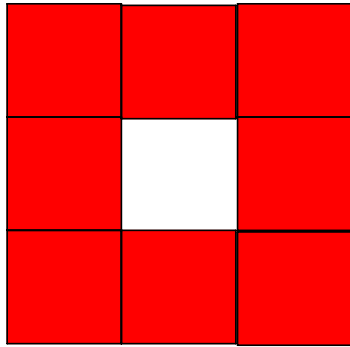


Figure 2

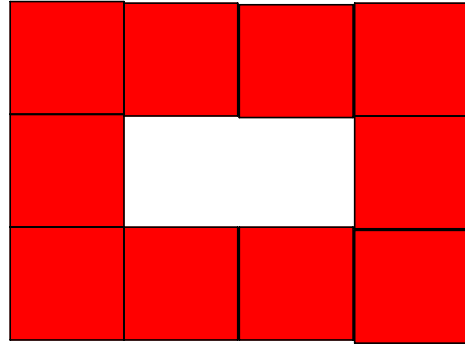


Figure 3

Describe in words how you see this pattern changing:

Describe in words what you see staying the same in each figure:

Use different colors to show which tiles are changing and which are not changing.

Build the fourth figure using the same color scheme used above.

Complete the chart for four figures

Figure Number	1	2	3	4
Number of tiles				
Number Sentence				

Figure Number	5	6	10	15	20
Number of tiles					
Number Sentence					

Write out a number sentence to show what is staying the same and what is changing. For example figure 2 might be $6 + 2$ and figure 3 might be $6 + 2 + 2$, etc.

Write out the number sentences for Figure 5, 6, 10, 15, and 20.

Generalize your number sentence for Figure N.

Use different colors to show another way the tiles are changing and which are not changing.

Record the number of tiles in each figure:

Figure Number	1	2	3	4
Number of tiles				
Number Sentence				

Figure Number	5	6	10	15	20
Number of tiles					
Number Sentence					

Write out a number sentence to show what is staying the same and what is changing.

Write out the number sentences for Figure 5, 6, 10, 15, and 20.

Generalize your number sentence for Figure N. Can you simplify this expression?

Use different colors to show another way the tiles are changing and which are not changing.

Record the number of tiles in each figure:

Figure Number	1	2	3	4
Number of tiles				
Number Sentence				

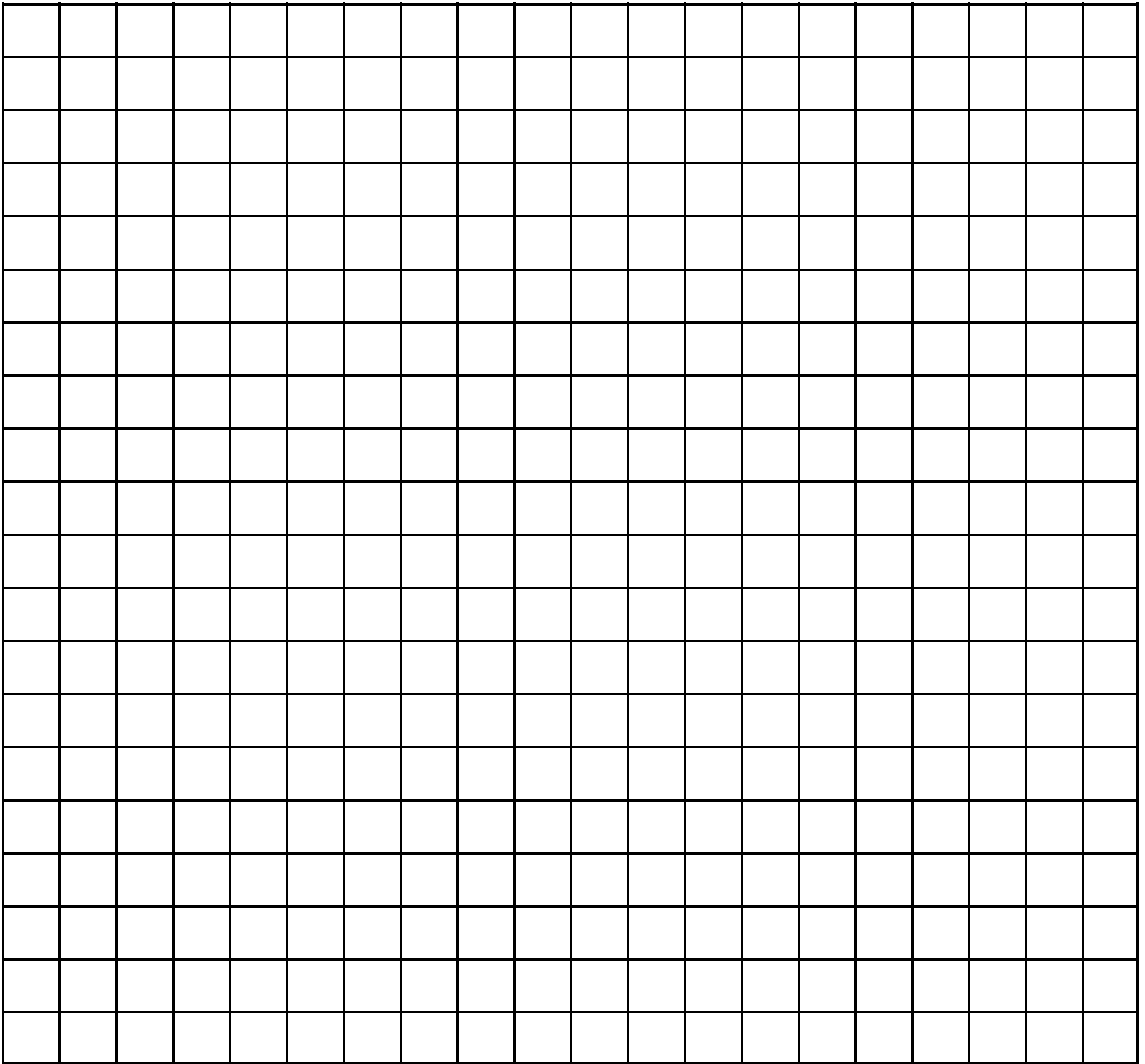
Figure Number	5	6	10	15	20
Number of tiles					
Number Sentence					

Write out a number sentence to show what is staying the same and what is changing.

Write out the number sentences for Figure 5, 6, 10, 15, and 20.

Generalize your number sentence for Figure N. Can you simplify this expression?

Let's make a graph of the data you collected. Place the figure number along the x-axis and the number of tiles along the y-axis.



What do you notice about the points you have placed on the graph? How do you move from one point to a consecutive point?

Can you predict where this set of dots would cross the y-axis if the dots were continued backwards?

How do these last two questions relate to the expression you used for the number of tiles in Figure N ?