Notes: Introduction to Proportional Relationships

Use the first applet in GeoGebra, Proportional Tiling Patterns Animation 1, to answer the following questions below. Directions for using the applet are included online.

1. How many tiles does the 6th stage have?

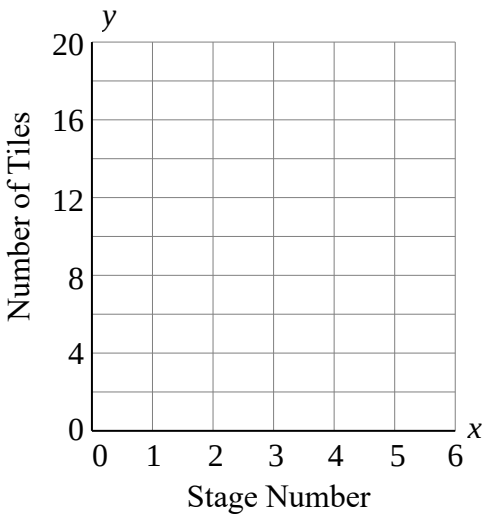
2. What is the constant of proportionality? Explain your reasoning.

3. Complete the table below. Think about how we can generalize the pattern to allow us to find the number of tiles for any stage (or for any value of x).

Stage Number x	Expanded Form (Addition) y	Multiplication $y = k \cdot x$	Number of Tiles y
0			
1			
2	**3 + 3**	**3 · 2**	**6**
3			
4			
5			
6			
x	3 + 3 + 3 ... + 3		

4. How can you find the number of tiles at any stage? Write an equation, where x is the stage number and y is the number of tiles. Then, use this equation to determine the number of tiles when x equals 100.

5. Complete the graph below. How do we know the graph below represents a proportional relationship?



Use the 2nd applet in GeoGebra, Proportional Tiling Patterns Animation 2, to answer the following questions below.

6. How many tiles does the 6th stage have?

7. What is the constant of proportionality? Explain your reasoning.

8. Complete the table below. Think about how we can generalize the pattern to allow us to find the number of tiles for any stage (or for any value of x).

Stage Number x	Expanded Form (Addition) y	Multiplication $y = k \cdot x$	Number of Tiles y
0			
1			
2	**$4 + 4$**	**$4 \cdot 2$**	**8**
3			
4			
5			
6			
x	$4 + 4 + 4 \ldots + 4$		

9. How can you find the number of tiles at any stage? Write an equation, where x is the stage number and y is the number of tiles. Then, use this equation to determine the number of tiles when x equals 100.

10. Complete the graph below. How do we know the graph below represents a proportional relationship?