

Use Color Tiles to build each consecutive square. Write the expression for each cell in the table. Use the table below to organize your data. Then, use the patterns to answer the questions.

| Sketch | Length of side | Find total Squares | Find total using an exponent | Find length of a side using a square root |
| :---: | :---: | :---: | :---: | :---: |
|  | 1" | $1 \bullet 1=1$ | $1^{2}=1$ | $1=\sqrt{1}$ |
|  | 2" |  |  |  |
|  | 3" |  |  |  |
|  | 4" |  |  |  |
|  | 5" |  |  |  |
|  | n |  |  |  |

1. How many total tiles would there be if the length of the side of the square was 6 ?
2. What would the length of the square's side (the square root) have to be if there were 49 total tiles in the area?
3. If you knew the length of a side was 10, explain how you would find the total number of squares.
4. Explain how you would find the length of the side of the square patio, if you knew the total number of tiles was 64 .
5. There is an inverse relationship between squaring a number and taking the square root of that perfect square. Explain what this means.

Find the value for each:
6) $12^{2}$
7) $8^{2}$
8) $\sqrt{ } 169$
9) $\sqrt{ } 10^{2}$

