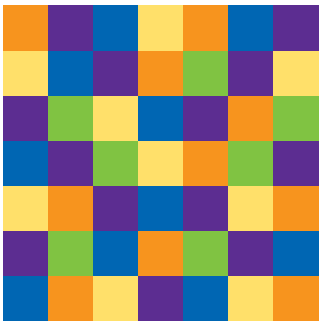
Superior Side Lengths

ACTIVITY

You need: a calculator with a square root ($\sqrt{\ }$) function

1.



a. How many tiles make up the large square above?

b. Take your answer, key it into a calculator, and press $\sqrt{\ }$.
(On some calculators, you may need to press $\sqrt{\ }$, then key in your answer, and then press $=$.)
What feature of the square matches your calculator result?

2. **a.** Follow these key sequences (or the alternative in **1b**) on your calculator and write down the last number displayed:

i. 4 x 4 = $\sqrt{\ }$ **ii.** 9 x 9 = $\sqrt{\ }$ **iii.** 78 x 78 = $\sqrt{\ }$

iv. 2.5 x 2.5 = $\sqrt{\ }$ **v.** 4.76 x 4.76 = $\sqrt{\ }$

b. What pattern do you notice?

3. Kirsty makes a square using 121 tiles.
How many tiles long is each side of her square?

4. Kirsty finds square roots ($\sqrt{\ }$) for the numbers 1, 4, 9, 16, and 25 and graphs them like this:

Draw a graph like this and include the square roots of 36, 49, 64, 81, and 100.
What pattern does the graph make?

5. Draw a line through the points on your graph.
Use your graph to estimate:

a. $\sqrt{30}$ **b.** $\sqrt{56}$

c. $\sqrt{70}$ **d.** $\sqrt{95}$

Check your answers on your calculator.