

## ROOT-IT

To help me determine square roots.

**R**ead the number inside the square root sign.

$$\sqrt{16} \quad \text{“sixteen”}$$

**O**rganize the number into groups, starting with two groups of 2.

- Draw dots or tallies
- Start with two groups with two dots or tallies in each group.

1 2 groups of two



**O**bserve the groups and ask, “Does it add up?”

- Multiply the number of groups by the number of dots or tallies in each group (or add the total number of dots or tallies).
- Compare the total to the number inside the square root sign.

$$\sqrt{16} = ? \quad \text{“1 2 groups of two equals *four*” (four does not equal sixteen)}$$



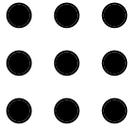
**T**ie down the answer, or continue grouping.

- If the total number of dots or tallies equals the number inside the square root sign, then move to the next step.
- If not, continue grouping dots and tallies (3 groups of 3, 4 groups of 4, etc.)
- Stop grouping when the total number of dots or tallies equals the number inside the square root sign.

1 2 groups of two equals *four*



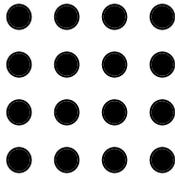
1 2 3 groups of three equals *nine*



$$\sqrt{16} = ?$$

1 2 3 4 groups of four equals

*sixteen*



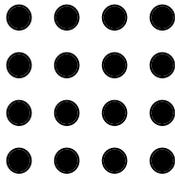
**I**dentify the square root by circling/counting the total number of groups.

- When the total equals the number inside the square root sign, count the number of groups.
- The total number of groups is the “square root.”



$$\sqrt{16} = 4$$

1 2 3 4 groups of four equals *sixteen*.



**T**est the answer by counting.

- Check your answer by counting all the dots or tallies.
- Check to see if the total number of dots or tallies does equal the number inside the square root sign.