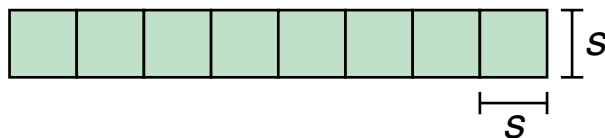


8-8

Solving Radical Equations and Inequalities

An architect is designing the layout of an office building. One section of the building will consist of a row of 8 identical offices, each with a square-shaped floor.



1. Write an equation that represents the total area A of the offices in terms of s , the side length of each office.
2. Solve your equation from Problem 1 for s .
3. Use your calculator to help you complete the table.

Total Area (ft ²)	Office Side Length (ft)
882	
968	
1058	
1152	
1250	

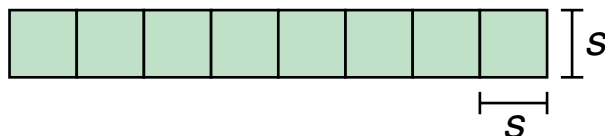
4. For what values of A does each office have a side length of at least 12 ft?

THINK AND DISCUSS

5. **Give** two equations you could use to determine the total area of the offices when given that each office has a side length of 14 ft.
6. **Explain** the steps you would use to solve each equation.

8-8 Solving Radical Equations and Inequalities

An architect is designing the layout of an office building. One section of the building will consist of a row of 8 identical offices, each with a square-shaped floor.



1. Write an equation that represents the total area A of the offices in terms of s , the side length of each office. $A = 8s^2$
2. Solve your equation from Problem 1 for s . $s = \pm\sqrt{\frac{A}{8}}$
3. Use your calculator to help you complete the table.

Total Area (ft ²)	Office Side Length (ft)
882	10.5
968	11
1058	11.5
1152	12
1250	12.5

4. For what values of A does each office have a side length of at least 12 ft? $A \geq 1152 \text{ ft}^2$

THINK AND DISCUSS

5. **Give** two equations you could use to determine the total area of the offices when given that each office has a side length of 14 ft. **Possible answer:** $A = 8(14)^2$ or $14 = \sqrt{\frac{A}{8}}$
6. **Explain** the steps you would use to solve each equation. **Possible answer:** $A = 8(14)^2$ —simplify the right side of the equation; $14 = \sqrt{\frac{A}{8}}$ — square both sides of the equation and then multiply both sides by 8.