Alfredo Gomez is designing patios. Each patio has a rectangular garden area in the center. Alfredo uses black tiles to represent the soil of the garden. Around each garden, he designs a border of white tiles. The pictures shown below show the three smallest patios that he can design with black tiles for the garden and white tiles for the border.



1. Draw patio 4 and patio 5. How many white tiles are in patio 4? Patio 5?
2. Make some observations about the patios that could help you describe larger patios.
3. Describe a method for finding the total number of white tiles needed for patio 50 (without constructing it).
4. Write a rule/equation that could be used to determine the number of white tiles needed for any patio. Explain how your rule relates to the visual representation of the patio.



1. Try to come up with a different rule that could be used to determine the number of white tiles needed for any patio. Explain how your rule relates to the visual representation of the patio.