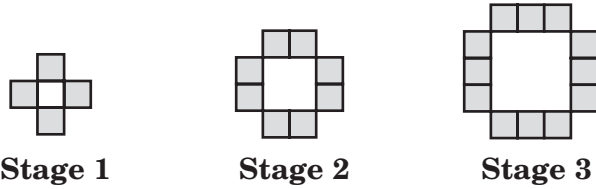


Patterns and Rules

Study the following pattern. The table at the right shows the number of shaded squares for each stage.



| Stage | Number of Shade Squares |
|-------|-------------------------|
| 1 | 4 |
| 2 | 8 |
| 3 | 12 |
| 4 | ? |
| 5 | ? |

Notice that the number of shaded squares is the stage multiplied by 4. If s represents the stage, the rule in symbols is $4s$. For the fourth stage, the number of shaded squares is 4×4 or 16. For the fifth stage, the number of shaded squares is 4×5 or 20. Draw Stages 4 and 5 and check these numbers.

For each pattern, describe a rule. Then, write the rule using symbols.

| | | |
|---|---|---|
| <p>1.</p> <p style="text-align: center;">Stage 1</p> | <p style="text-align: center;">Stage 2</p> | <p style="text-align: center;">Stage 3</p> |
| <p>2.</p> <p style="text-align: center;">Stage 1</p> | <p style="text-align: center;">Stage 2</p> | <p style="text-align: center;">Stage 3</p> |
| <p>3.</p> <p style="text-align: center;">Stage 1</p> | <p style="text-align: center;">Stage 2</p> | <p style="text-align: center;">Stage 3</p> |

4. Joan uses white and black tiles to make table tops as shown below. How many white tiles are needed for a table that has one row of 5 black tiles? Explain your reasoning.

