

Name _____

1. State the relationship between the original number and the final number for the following procedure, and then **justify** your conclusion by using a variable in place of the chosen number.

Step 1: Pick a number.

Step 2: Add 5 to the number.

Step 3: Multiply the result by 6.

Step 4: Subtract 3.

Step 5: Divide the result by 3.

Step 6: Subtract 9 to obtain the final number.

2. **Explain** why the point $(3, 6p)$ is on the graph of the function defined by the formula $C(r) = 2p \cdot r$. Find another point on the graph. (Assume the domain of the function is the set of all positive real numbers.)

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3. The formula for converting Celsius temperatures to Fahrenheit is

$$F = \frac{9}{5}C + 32,$$

where C represents the number of degrees Celsius and F represents the number of degrees Fahrenheit. Find the Celsius temperature if the temperature is 86 degrees Fahrenheit. **Show your work.**

4. One way to describe how to get a number in Column B from the corresponding number in Column A is to “multiply by 3 and then add 6.”

A	B
3	15
4	18
7	27
10	36

What is another rule that could describe the same relationship?

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5. Toothpicks are arranged as shown in the figures.

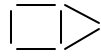


Figure 1

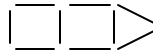


Figure 2

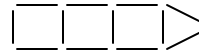


Figure 3

If the pattern is continued, how many toothpicks would be used to make Figure 20?