Chapter 12: Patterns and Sequences

Fill the missing numbers in the pattern.

The first number is 145. The rule is to add 4.

145, _____, _____, 157, _____, 165

The first number is 999. The rule is to add 15.

999, _____, _____, 1044, _____, 1074

The first number is 1078. The rule is to add 25.

1078, _____, _____, 1153, _____, 1203

The first number is 2500. The rule is to add 70.

2500, _____, _____, 2710, _____, 2850

Find the rule of each of the geometric number pattern and find out the missing number.

1. 3, 24, 192, _____, 12288, 98304

    Rule:

    Missing number:

2. 6, 12, 24, 48, 96, _____

    Rule:

    Missing number:

3. 1, 7, 49, _____, 2401, 16807

    Rule:

    Missing number:

4. 9, 81, _____, 6561, 59049, 531441

    Rule:

    Missing number:

5. 6, 42, 294, _____, 14406, 100842

    Rule:

    Missing number:

Use the given rule to complete the pattern.

1. Rule: multiply by 3, then add 5

   3, 14, 47, 146, 443, _____

2. Rule: multiply by 5, then subtract 1

   2, 9, 44, 219, 1094, _____

3. Rule: add 4, then multiply 2

   1, 10, 28, 64, 136, _____

4. Rule: multiply by 4, then subtract 3

   5, 17, 65, 257, 1025, _____

5. Rule: multiply by 2, then add 5

   24, 53, 111, 227, 459, _____

6. Rule: multiply by 3, then subtract 6

   16, 42, 120, 354, 1056, _____

Read the following word problems and answer the questions.

Merrie has a garden and likes to put flowers from her garden into pretty vases. Merrie put 1 flower in the first vase, 2 flowers in the second vase, 4 flowers in the third vase, and 8 flowers in the fourth vase. If this pattern continues, how many flowers will Merrie put in the fifth vase?

A. 13
B. 16
C. 27
D. 30

On the last day of school, the first student will receive 13 blue pens, the second student will receive 24 blue pens, the third student will receive 35 blue pens, and the fourth student will receive 46 blue pens. If this pattern continues, how many blue pens will the fifth student receive?

☐ blue pens

A restaurant used 1 onion on Sunday, 3 onions on Tuesday, 27 onions on Wednesday, and 81 onions on Thursday. If this pattern continues, how many onions will the restaurant use on Friday?

☐ onions

Evelyn is stacking cups, she puts 2 cups in the first stack, 3 cups in the second stack, 6 cups in the third stack, and 11 cups in the fourth stack. How many cups will Evelyn put in the fifth stack if follow this pattern?

_____ cups

Joan is a photographer. She is going to keep 325 photos in her first album, 336 photos in her second album, 348 photos in her third album, and 361 photos in her fourth album. If Joan continues with this pattern, how many photos will be kept in her fifth album?

_____ photos