**Expansion Work**  Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Write the first five terms of each of the following number patterns.

1. Starting number: 12

Rule: Add 4.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ |

1. Starting number: 3

Rule: Multiply by 4.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ |

1. Starting number: 38

Rule: Subtract 7.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ |

1. Starting number: 2

Rule: Multiply by 5.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ |

1. Starting number: 2

Rule: Multiply by 4; then subtract 3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ | \_\_\_ |

Write the sequence and solve.

1. Amy read 2 novels during 6th grade, 4 novels during 7th grade, and 6 novels during 8th grade. Assume this pattern continues. How many novels will she read during the 11th grade?
2. The number of coins Jason has in his coin collection doubles each month. He started the collection with 8 coins in March. How many coins will he have in August?

Challenge

1. Write any rule and starting number that may be used to create a number pattern. Then, write the sequence.
2. Write a word problem that represents a number pattern. Solve.
3. Create a number pattern that has terms that alternate between odd and even numbers. Show the rule and starting number used to create the sequence.

**Expansion Work** **(KEY)**

Write the first five terms of each of the following number patterns.

1. Starting number: 12

Rule: Add 4.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **12** | **16** | **20** | **24** | **28** |

1. Starting number: 3

Rule: Multiply by 4.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **3** | **12** | **48** | **192** | **768** |

1. Starting number: 38

Rule: Subtract 7.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **38** | **31** | **24** | **17** | **10** |

1. Starting number: 2

Rule: Multiply by 5.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2** | **10** | **50** | **250** | **1,250** |

1. Starting number: 2

Rule: Multiply by 4; then subtract 3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2** | **5** | **17** | **65** | **257** |

Write the sequence and solve.

1. Amy read 2 novels during 6th grade, 4 novels during 7th grade, and 6 novels during 8th grade. Assume this pattern continues. How many novels will she read during the 11th grade?

**2, 4, 6, 8, 10, 12, . . . 12 novels**

1. The number of coins Jason has in his coin collection doubles each month. He started the collection with 8 coins in March. How many coins will he have in August?

**8, 16, 32, 64, 128, 256, . . . 256 coins**

Challenge

***Answers will vary.***

1. Write any rule and starting number that may be used to create a number pattern. Then, write the sequence.
2. Write a word problem that represents a number pattern. Solve.
3. Create a number pattern that has terms that alternate between odd and even numbers. Show the rule and starting number used to create the sequence.