**Lesson 4.2- Constructing Arithmetic Sequences**

|  |  |
| --- | --- |
| **General Recursive Rule** | **General Explicit Rule** |
| $$f\left(1\right), f\left(n\right)=f\left(n-1\right)+d, n\geq 2$$ | $$f\left(n\right)=f\left(1\right)+d(n-1)$$ |

In an **Arithmetic Sequence**, the difference between two consecutive terms is always equal. This difference, written as ***d***, is called the **common difference**.

**Example A:**

**The table shows the monthly balance in a savings account with regular monthly deposits. The savings account begins with $2000 and $500 is deposited each month.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time (months)** | n | 1 | 2 | 3 | 4 | 5 |
| **Balance** | F(n) | 2000 | 2500 | 3000 | 3500 | 4000 |

 **Recursive Rule Explicit Form**

**Use the Explicit Equation to find f(9).**

**Example B:**

**The table shows the monthly balance in a savings account with regular deposits.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time (months)** | n | 1 | 2 | 3 | 4 | 5 |
| **Balance** | F(n) | 5000 | 6000 | 7000 | 8000 | 9000 |

 **Recursive Rule Explicit Form**

**Use the Explicit Equation to find f(7).**

**Example C:**

**100, 88, 76, 64,……**

 **Recursive Rule Explicit Form**

**Use the Explicit Equation to find f(10).**

**Example D:**

**0, 8, 16, 24, 32,….**

 **Recursive Rule Explicit Form**

**Use the Explicit Equation to find f(8).**

**Example E:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Time (years)** | n | 1 | 2 | 3 | 4 |
| **Hats** | F(n) |  |  |  |  |

**Recursive Rule Explicit Form**

**Use the Explicit Equation to find f(12).**

**Homework: Workbook Page 171 (4-9) and Workbook Page 182 (4-7).**