Math 3H Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Per:\_\_\_

**11.1 Arithmetic Series**

For each arithmetic sequence find the **common difference**, the **explicit formula**, and the **52nd term**.

|  |  |  |
| --- | --- | --- |
| 1. 3 ,6 ,9 ,12 ,15 ,18
 | 1. 6 ,13 ,20 ,27 ,34
 | 1. 14, 22, 30, 38
 |
| 1. -22, 8, 38, 68
 | 1. 31, 21, 11, 1
 | 1. 23, -177, -377, -577
 |

**Re-write each series in sigma notation**.

|  |  |  |
| --- | --- | --- |
| 1. 38, 41, 44 ,47, . . . 68
 | 1. 2 ,12, 22, 32, . . . 52
 | 1. -4, 6, 16, 26, . . . 106
 |
| 1. 301 + 302 + 303 + . . .+ 308

- | 1. 3 + 6 + 9 + . . . + 105
 | 1. 39 + 43 + 47 + . . . + 155
 |

**Factor each**.

|  |  |
| --- | --- |
| 1. $x^{3}+1=0$
 | 1. $x^{3}-2x^{2}-41x=0$
 |
| 1. $x^{3}-8x^{2}+16x=0$
 | 1. $x^{2}+x-12=0$
 |

**Simplify each expression**.

|  |  |
| --- | --- |
| 1. $\left(4n^{4}-5\right)-\left(3n^{4}+3-4n^{3}\right)-\left(8-5n^{4}\right)$
 | 1. $\left(6r^{3}+6\right)+\left(3-8r^{2}+6r\right)+\left(r-1\right)$
 |

**Find each product**.

|  |  |
| --- | --- |
| 1. $\left(4x+5\right)\left(8x-1\right)$
 | 1. $\left(2x-4\right)\left(4x^{2}-8x-7\right)$
 |

**Find each term described**.

|  |  |
| --- | --- |
| 1. 3rd term in the expansion of $\left(5v+1\right)^{3}$
 | 1. 1st term in the expansion of $\left(n-m\right)^{4}$
 |

**Divide**.

|  |  |
| --- | --- |
| 1. $\left(n^{3}+9n^{2}+12n+3\right)÷\left(n+2\right)$
 | 1. $\left(n^{3}+7n^{2}-12n-6\right)÷\left(n-2\right)$
 |