**SEQUENCES AND SERIES CALTECH:**

**Arithmetic Sequence and Series:**

1. From the sequence 1, 4, 7, 10, … find the 30th term.

MODE > STAT(3) > A + BX(2) (this means arithmetic progression)

|  |  |
| --- | --- |
| X | Y |
| 1 | 1 |
| 2 | 4 |

then, AC > TYPE ’30’ > SHIFT > KEY 1 > REG(5) > y (5)

display should be: 30y

answer: 88

1. From the sequence 1, 4, 7, 10, … 49 is what term of the progression?

MODE > STAT(3) > A + BX(2) (this means arithmetic progression)

|  |  |
| --- | --- |
| X | Y |
| 1 | 1 |
| 2 | 4 |

then, AC > TYPE ’49’ > SHIFT > KEY 1 > REG(5) > x (4)

display should be: 49x

answer: 17

1. If the first term of an arithmetic progression is 3 and its tenth term is 39, find the common difference.

MODE > STAT(3) > A + BX(2) (this means arithmetic progression)

|  |  |
| --- | --- |
| X | Y |
| 1 | 3 |
| 10 | 39 |

display should be: 2y – 1y (because common difference is the difference of the two consecutive terms. Instead of 2y – 1y, you can also do 4y – 3y, 7y – 8y, or even 101y – 100y, as long as the terms are consecutive.

answer: 4

1. Find the sum of the first 30 terms of the sequence 1, 4, 7, 10, …

MODE > STAT(3) > A + BX(2) (this means arithmetic progression)

|  |  |
| --- | --- |
| X | Y |
| 1 | 1 |
| 2 | 4 |

Display should be:

answer: 1335

**Geometric Sequence and Series:**

1. Find the 15th term of the geometric progression 3, 6, 12, 24, 48, …

MODE > STAT(3) > ABX (6) (this means geometric progression)

|  |  |
| --- | --- |
| X | Y |
| 1 | 3 |
| 2 | 6 |

display should be: 15y

answer: 49 152

1. If the first term of a geometric progression is 4 and the fifth term is 324, what is the common ratio?

MODE > STAT(3) > ABX (6) (this means geometric progression)

|  |  |
| --- | --- |
| X | Y |
| 1 | 4 |
| 5 | 324 |

then, AC > SHIFT > KEY 1 > REG(5) > B (2)

display should be: B

answer: 3

1. Find the sum of the first 15 terms of the geometric progression 3, 6, 12, 24, 48.

MODE > STAT(3) > ABX (6) (this means geometric progression)

|  |  |
| --- | --- |
| X | Y |
| 1 | 3 |
| 2 | 6 |

display should be:

answer: 98 301