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

11.2 Arithmetic Series

**Find the sum of the finite arithmetic series**.

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| --- | --- | --- |
| 1. 8 + 13 + 18 + 23 + … +88
 | 1. 2 + 8 + 14 + 20 +…+ 116
 | 1. 2 + (-1) + (-4) +…+ (-40)
 |
| 1. 4+2+0+…+(-20)
 | 1. 7+19+31+43+…+115
 | 1. 1+5+9+13+…+45
 |
| 1.
 | 1.
 | 1.
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| 1.
 | 1.
 | 1.
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1. A theater has 20 seats in the first row, 22 seats in the second row, increasing by 2 seats per row for a total of 25 rows.
2. Write an arithmetic series to represent the number of seats in the theater.
3. Find the total seating capacity of the theater.
4. If tickets are $9.25 per seat, how much money will the theater make if the theater is filled to capacity?
5. A supermarket displays cans in a triangle. There are 15 cans in the bottom row and each successive row has one fewer can than the previous row for a total of 14 rows.
6. Use summation notation to write the series for the triangle.
7. How many cans are in the display?
8. A company offers a starting yearly salary of $28,500 with raises of $1,000 each year after the first year. Find the total salary over a 15 year period.

**Factor completely. (You may have complex answers)**

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| --- | --- |
| 1. $81m^{3}+3$
 | 1. $27x^{3}+125$
 |

**Find the zeros, multiplicities, and where they touch/cross.**

|  |  |
| --- | --- |
| 1. $f\left(x\right)=\left(x-2\right)^{2}\left(x+4\right)^{3}\left(x-3\right)$
 | 1. $f\left(x\right)=x^{2}\left(x-7\right)^{3}\left(x-6\right)^{5}$
 |

**State if the given binomial is a factor of the given polynomial**.

|  |  |
| --- | --- |
| 1. $\left(n^{3}+6n^{2}+4n+7\right)÷\left(n+1\right)$
 | 1. $\left(n^{3}-5n^{2}+n+3\right)÷\left(n-1\right)$
 |

**Find the remainder**.

|  |  |
| --- | --- |
| 1. $\left(n^{3}+6n^{2}+4n+7\right)÷\left(n+1\right)$
 | 1. $\left(v^{3}+8v^{3}+15v+15\right)÷\left(v+6\right)$
 |

**State the end behavior of the function using limit notation**.

|  |  |
| --- | --- |
| 1. $f\left(x\right)=-x^{3}-x^{2}+3x-1$
 | 1. $f\left(x\right)=x^{6}+2x^{5}-4x^{4}-3x^{2}-9$
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