Name_____ ID: 1

Arithmetic Series

Date_____ Period____

Evaluate the related series of each sequence.

1) 40, 50, 60, 70, 80, 90

2) 4, 2, 0, −2, −4, −6, −8

Evaluate each arithmetic series described.

3) $a_1 = -30$, $a_n = -220$, $n = 20$

4) $a_1 = 40$, $a_n = 130$, $n = 11$

5) $a_1 = -5$, $a_n = -65$, $n = 7$

6) $a_1 = -16$, $a_n = -64$, $n = 7$

7) $27 + 34 + 41 + 48...$, $n = 10$

8) $0 + 6 + 12 + 18...$, $n = 8$

9) $9 + 12 + 15 + 18...$, $n = 7$

10) $\displaystyle\sum_{m=1}^{15} (10m - 15)$

11) $\displaystyle\sum_{m=1}^{5} (10m - 7)$

12) $\displaystyle\sum_{m=1}^{7} (3m - 9)$

13) $\displaystyle\sum_{k=1}^{10} (8k - 10)$

II. Review: For each sequence, state if it is arithmetic, geometric, or neither.

14) $1, -\dfrac{1}{2}, -2, -\dfrac{7}{2}, -5, ...$

15) 2, −6, 18, −54, 162, ...

16) 3, 6, 12, 24, 48, ...

17) −4, 8, −16, 32, −64, ...

II. Review: For each sequence, state if it is arithmetic, geometric, or neither. Write a formula for the nth term and use it find the 15 term in each sequence.

18) −26, −19, −12, −5, 2, ...

19) −0.2, −1, −5, −25, −125, ...

20) 4, 16, 64, 256, 1024, ...

21) 10, 15, 20, 25, 30, ...

22) −16, −14, −12, −10, −8, ...

23) −2, −1, $-\frac{1}{2}$, $-\frac{1}{4}$, $-\frac{1}{8}$, ...

24) Emani makes $2.00 an hour for her first hour of work, $4.00 for her second hour, $6.00 her third hour and so on. How much money will she earn on her 12th hour of work?

25) KJ gets better and better at thr video game 2048 every time he plays. He scores 2450 points in the first game, 2700 in the second, 2950 in the third and so on. How many points will he score in his 15th game?

26) Bonus:
A display of cans on a grocery shelf consists of 20 cans on the bottom, 18 cans in the next row, and so on in an arithmetic sequence, until the top row has 4 cans. How many cans, in total, are in the display?

Name_____ ID: 1

Arithmetic Series
Date_____ Period____

Evaluate the related series of each sequence.

1) 40, 50, 60, 70, 80, 90

   390

2) 4, 2, 0, −2, −4, −6, −8

   −14

Evaluate each arithmetic series described.

3) $a_1 = -30$, $a_n = -220$, $n = 20$

   −2500

4) $a_1 = 40$, $a_n = 130$, $n = 11$

   935

5) $a_1 = -5$, $a_n = -65$, $n = 7$

   −245

6) $a_1 = -16$, $a_n = -64$, $n = 7$

   −280

7) $27 + 34 + 41 + 48...$, $n = 10$

   585

8) $0 + 6 + 12 + 18...$, $n = 8$

   168

9) $9 + 12 + 15 + 18...$, $n = 7$

   126

10) $\sum_{m=1}^{15} (10m - 15)$

   975

11) $\sum_{m=1}^{5} (10m - 7)$

   115

12) $\sum_{m=1}^{7} (3m - 9)$

   21

13) $\sum_{k=1}^{10} (8k - 10)$

   340

II. Review: For each sequence, state if it is arithmetic, geometric, or neither.

14) $1,\ -\dfrac{1}{2},\ -2,\ -\dfrac{7}{2},\ -5,\ ...$

   Arithmetic

15) 2, −6, 18, −54, 162, ...

   Geometric

16) 3, 6, 12, 24, 48, ...

   Geometric

17) −4, 8, −16, 32, −64, ...

   Geometric

 Made with Infinite Algebra 2.

II. Review: For each sequence, state if it is arithmetic, geometric, or neither. Write a formula for the nth term and use it find the 15 term in each sequence.

18) -26, -19, -12, -5, 2, ...

$a_n = -26 + 7(n-1)$

19) -0.2, -1, -5, -25, -125, ...

$a_n = -0.2 \cdot 5^{n-1}$

20) 4, 16, 64, 256, 1024, ...

$a_n = 4 \cdot 4^{n-1}$

21) 10, 15, 20, 25, 30, ...

$a_n = 10 + 5(n-1)$

22) -16, -14, -12, -10, -8, ...

$a_n = -16 + 2(n-1)$

23) -2, -1, $-\dfrac{1}{2}$, $-\dfrac{1}{4}$, $-\dfrac{1}{8}$, ... $\quad a_n = -2 \cdot \left(\dfrac{1}{2}\right)^{n-1}$

24) Emani makes $2.00 an hour for her first hour of work, $4.00 for her second hour, $6.00 her third hour and so on. How much money will she earn on her 12th hour of work?

$24

25) KJ gets better and better at thr video game 2048 every time he plays. He scores 2450 points in the first game, 2700 in the second, 2950 in the third and so on. How many points will he score in his 15th game?

6200

26) Bonus:
A display of cans on a grocery shelf consists of 20 cans on the bottom, 18 cans in the next row, and so on in an arithmetic sequence, until the top row has 4 cans. How many cans, in total, are in the display?

108