Secondary I Name_____

4.3 Arithmetic and Geometric Sequences Worksheet

Period____

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Determine if the sequence is arithmetic. If it is, find the common difference.

1) –9, –109, –209, –309, ...

2) 28, 18, 8, –2, ...

3) 28, 26, 24, 22, ...

4) –16, –6, 4, 14, ...

5) –8, –4, 0, 4, ...

6) $1, \frac{1}{2}, 0, -\frac{1}{2}, \ldots$

Find the common difference and the three terms in the sequence after the last one given.

7) –39, –33, –27, –21, ...

8) –27, –17, –7, 3, ...

9) 17, 13, 9, 5, ...

10) $\frac{1}{5}, \frac{23}{15}, \frac{43}{15}, \frac{21}{5}, \ldots$

Find the common difference and the recursive formula.

11) 9, 19, 29, 39, ...

12) 22, 19, 16, 13, ...

13) –3, 97, 197, 297, ...

14) 34, 43, 52, 61, ...

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Find the common difference, the term named in the problem, and the explicit formula.

15) 17, 11, 5, −1, ...
Find a_{39}

16) 5, −5, −15, −25, ...
Find a_{20}

17) −40, −47, −54, −61, ...
Find a_{29}

18) −32, −132, −232, −332, ...
Find a_{40}

19) −8, 22, 52, 82, ...
Find a_{20}

20) 29, 38, 47, 56, ...
Find a_{29}

21) 36, 29, 22, 15, ...
Find a_{29}

22) −20, −29, −38, −47, ...
Find a_{20}

Determine if the sequence is geometric. If it is, find the common ratio.

23) −2, −10, −50, −250, ...

24) −1, 6, −36, 216, ...

25) −1, −5, −25, −125, ...

26) −2, 10, −50, 250, ...

27) $-3, -1, -\frac{1}{3}, -\frac{1}{9}, \ldots$

28) $-2, \frac{1}{2}, -\frac{1}{8}, \frac{1}{32}, \ldots$

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Find the common ratio and the three terms in the sequence after the last one given.

29) −2, −8, −32, −128, ...

30) 2, −8, 32, −128, ...

31) 3, −6, 12, −24, ...

32) 2, 10, 50, 250, ...

Find the common ratio and the recursive formula.

33) −1, 5, −25, 125, ...

34) −3, −15, −75, −375, ...

35) 3, −15, 75, −375, ...

36) 0.5, 1, 2, 4, ...

Find the common ratio, the term named in the problem, and the explicit formula.

37) 4, 12, 36, 108, ...
Find a_9

38) −2, 6, −18, 54, ...
Find a_{12}

39) −3, 9, −27, 81, ...
Find a_{10}

40) −4, 8, −16, 32, ...
Find a_{11}

41) −4, −12, −36, −108, ...
Find a_{12}

42) 4, 8, 16, 32, ...
Find a_{10}

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43) $-20,\ -10,\ -5,\ -\frac{5}{2}, \ldots$

Find a_9

44) $\frac{1}{2},\ \frac{1}{6},\ \frac{1}{18},\ \frac{1}{54}, \ldots$

Find a_{12}

Given the first term and the common difference of an arithmetic sequence find the explicit formula and the three terms in the sequence after the last one given.

45) $a_1 = 35,\ d = -20$

46) $a_1 = 22,\ d = -9$

47) $a_1 = -34,\ d = -2$

48) $a_1 = -22,\ d = -30$

Given the first term and the common ratio of a geometric sequence find the explicit formula and the three terms in the sequence after the last one given.

49) $a_1 = 4,\ r = -4$

50) $a_1 = -2,\ r = 4$

51) $a_1 = 1,\ r = 3$

52) $a_1 = -3,\ r = -5$

Find the missing term or terms in each arithmetic sequence.

53) ..., −6, ___, 8, ...

54) ..., 30, ___, ___, 0, ...

55) ..., −14, ___, ___, 46, ...

56) ..., 38, ___, ___, 65, ...

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