Algebra 2 - Mr. C. - All work on looseleaf. Name_____

Week 6 Practice - Ref. Ch. 9-3 and 9-4

Date_____ Period____

Determine if the sequence is arithmetic. If it is, find the common difference and the term named in the problem.

1) $-31,\ -51,\ -71,\ -91,\ ...$
Find a_{34}

2) $-39,\ -47,\ -55,\ -63,\ ...$
Find a_{38}

3) $6,\ -194,\ -394,\ -594,\ ...$
Find a_{26}

4) $5,\ -5,\ -15,\ -25,\ ...$
Find a_{21}

5) $-31,\ 169,\ 369,\ 569,\ ...$
Find a_{30}

6) $13,\ 213,\ 413,\ 613,\ ...$
Find a_{39}

Given two terms in an arithmetic sequence find the common difference and the term named in the problem.

7) $a_{15} = 1418$ and $a_{34} = 3318$
Find a_{23}

8) $a_{14} = 1261$ and $a_{36} = 3461$
Find a_{30}

9) $a_{16} = 136$ and $a_{35} = 326$
Find a_{24}

10) $a_{15} = 68$ and $a_{30} = 143$
Find a_{33}

11) $a_{16} = 19$ and $a_{34} = 73$
Find a_{26}

12) $a_{15} = -390$ and $a_{34} = -960$
Find a_{39}

Evaluate each arithmetic series described.

13) $a_1 = 6,\ a_n = 76,\ n = 15$

14) $a_1 = 9,\ a_n = 105,\ n = 25$

15) $a_1 = 13,\ a_n = 286,\ n = 40$

16) $a_1 = 8,\ a_n = 62,\ n = 10$

17) $a_1 = 20,\ a_n = 104,\ n = 15$

18) $a_1 = 14,\ a_n = 62,\ n = 25$

19) $a_1 = 0,\ d = 5,\ n = 10$

20) $a_1 = 37,\ d = 9,\ n = 30$

21) $a_1 = 28,\ d = 9,\ n = 45$

22) $a_1 = 11,\ d = 4,\ n = 15$

23) $a_1 = 6,\ d = 5,\ n = 7$

24) $a_1 = 13,\ d = 5,\ n = 10$

25) $27 + 33 + 39 + 45...,\ n = 8$

26) $6 + 8 + 10 + 12...,\ n = 18$

27) $9 + 15 + 21 + 27...,\ n = 7$

28) $8 + 17 + 26 + 35...,\ n = 15$

29) $23 + 28 + 33 + 38...,\ n = 9$

30) $37 + 47 + 57 + 67...,\ n = 12$

31) $\sum_{k=5}^{12} (14 - 10k)$

32) $\sum_{k=5}^{54} (5k - 11)$

33) $\sum_{n=4}^{13} (4n + 1)$

34) $\sum_{i=5}^{13} (5i + 5)$

35) $\sum_{i=2}^{16} (4i - 9)$

36) $\sum_{n=5}^{19} (9n - 13)$

Determine if the sequence is geometric. If it is, find the common ratio and the term named in the problem.

37) 1, 3, 9, 27, ...
Find a_{12}

38) −4, −8, −16, −32, ...
Find a_{10}

39) 2, 8, 32, 128, ...
Find a_{10}

40) –3, 12, –48, 192, ...
Find a_9

41) 3, –6, 12, –24, ...
Find a_{10}

42) –3, –9, –27, –81, ...
Find a_{12}

Given two terms in a geometric sequence find the common ratio and the term named in the problem.

43) $a_4 = -32$ and $a_2 = -8$
Find a_{12}

44) $a_1 = -1$ and $a_6 = 32$
Find a_{11}

45) $a_3 = -18$ and $a_6 = -486$
Find a_{11}

46) $a_6 = -729$ and $a_3 = -27$
Find a_{11}

47) $a_4 = 24$ and $a_5 = -48$
Find a_{12}

48) $a_1 = 1$ and $a_2 = -2$
Find a_{12}

Evaluate each geometric series described.

49) $2 + 6 + 18 + 54..., \ n = 7$

50) $1 - 3 + 9 - 27..., \ n = 9$

51) $2 - 8 + 32 - 128..., \ n = 9$

52) $1 + 6 + 36 + 216..., \ n = 8$

53) $2 + 4 + 8 + 16..., \ n = 8$

54) $2 - 8 + 32 - 128..., \ n = 7$

55) $a_1 = -3, \ a_n = -1536, \ r = 2$

56) $a_1 = 1, \ a_n = -512, \ r = -2$

57) $a_1 = -1, \ a_n = 512, \ r = -2$

58) $a_1 = 1, \ a_n = 256, \ r = -2$

59) $a_1 = -2,\ a_n = -131072,\ r = 4$

60) $a_1 = -2,\ a_n = -32768,\ r = 4$

61) $\sum_{n=1}^{8} -5^{n-1}$

62) $\sum_{k=1}^{9} 5^{k-1}$

63) $\sum_{i=1}^{10} 4^{i-1}$

64) $\sum_{m=1}^{7} (-6)^{m-1}$

65) $\sum_{n=1}^{8} -2 \cdot (-5)^{n-1}$

66) $\sum_{m=1}^{10} -3 \cdot (-4)^{m-1}$

67) $a_1 = 4,\ r = 3,\ n = 7$

68) $a_1 = -4,\ r = -3,\ n = 8$

69) $a_1 = 3,\ r = -2,\ n = 8$

70) $a_1 = 3,\ r = -2,\ n = 7$

71) $a_1 = 4,\ r = -2,\ n = 9$

72) $a_1 = 4,\ r = 3,\ n = 9$

Find the geometric mean in each geometric sequence for the given terms.

73) ..., 3, ___, 75, ...

74) ..., 2, ___, 50, ...

75) ..., 4, ___, 100, ...

76) ..., 2, ___, 32, ...

77) ..., 2, ___, 72, ...

78) ..., 2, ___, 18, ...

79) ..., 3, ___, 12, ...

80) ..., 3, ___, 48, ...

81) ..., 4, ___, 36, ...

82) ..., 1, ___, 9, ...

Answers to Week 6 Practice - Ref. Ch. 9-3 and 9-4 (ID: 1)

1) Common Difference: $d = -20$
$a_{34} = -691$

2) Common Difference: $d = -8$
$a_{38} = -335$

3) Common Difference: $d = -200$
$a_{26} = -4994$

4) Common Difference: $d = -10$
$a_{21} = -195$

5) Common Difference: $d = 200$
$a_{30} = 5769$

6) Common Difference: $d = 200$
$a_{39} = 7613$

7) Common Difference: $d = 100$
$a_{23} = 2218$

8) Common Difference: $d = 100$
$a_{30} = 2861$

9) Common Difference: $d = 10$
$a_{24} = 216$

10) Common Difference: $d = 5$
$a_{33} = 158$

11) Common Difference: $d = 3$
$a_{26} = 49$

12) Common Difference: $d = -30$
$a_{39} = -1110$

13) 615
14) 1425
15) 5980
16) 350
17) 930
18) 950
19) 225
20) 5025
21) 10170
22) 585
23) 147
24) 355
25) 384
26) 414
27) 189
28) 1065
29) 387
30) 1104
31) −568
32) 6825
33) 350
34) 450
35) 405
36) 1425

37) Common Ratio: $r = 3$
$a_{12} = 177147$

38) Common Ratio: $r = 2$
$a_{10} = -2048$

39) Common Ratio: $r = 4$
$a_{10} = 524288$

40) Common Ratio: $r = -4$
$a_{9} = -196608$

41) Common Ratio: $r = -2$
$a_{10} = -1536$

42) Common Ratio: $r = 3$
$a_{12} = -531441$

43) Common Ratio: $r = 2$
$a_{12} = -8192$

44) Common Ratio: $r = -2$
$a_{11} = -1024$

45) Common Ratio: $r = 3$
$a_{11} = -118098$

46) Common Ratio: $r = 3$
$a_{11} = -177147$

47) Common Ratio: $r = -2$
$a_{12} = 6144$

48) Common Ratio: $r = -2$
$a_{12} = -2048$

49) 2186
50) 4921
51) 104858
52) 335923
53) 510
54) 6554
55) −3069
56) −341
57) 341
58) 171
59) −174762
60) −43690
61) −97656
62) 488281
63) 349525
64) 39991
65) 130208
66) 629145
67) 4372
68) 6560
69) −255
70) 129
71) 684
72) 39364
73) 15
74) 10
75) 20
76) 8
77) 12
78) 6
79) 6
80) 12
81) 12
82) 3