Algebra 2   Name_____

Arithmetic Practice

Date_____ Period_____

Determine if the sequence is arithmetic. If it is, find the common difference, the 52nd term, and the explicit formula.

1) 2, 11, 20, 29, ...

2) 39, 47, 55, 63, ...

Given the explicit formula for an arithmetic sequence find the common difference, the term named in the problem, and the recursive formula.

3) $a_n = -5 + (n - 1) \cdot -2$

Find a_{39}

4) $a_n = -30 + (n - 1) \cdot -9$

Find a_{38}

Given the recursive formula for an arithmetic sequence find the common difference, the term named in the problem, and the explicit formula.

5) $a_n = a_{n-1} - 7$
   $a_1 = 26$
   Find a_{22}

6) $a_n = a_{n-1} + 200$
   $a_1 = 39$
   Find a_{26}

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

7) $a_{10} = -100$ and $a_{39} = -390$
   Find a_{31}

8) $a_{14} = 144$ and $a_{36} = 364$
   Find a_{21}

Given the first term and the common difference of an arithmetic sequence find the term named in the problem and the explicit formula.

9) $a_1 = 2,\ d = 9$
   Find a_{29}

10) $a_1 = -23,\ d = -6$
    Find a_{29}

Given a term in an arithmetic sequence and the common difference find the term named in the problem and the explicit formula.

11) $a_{24} = 4565, \ d = 200$
Find a_{37}

12) $a_{22} = 4234, \ d = 200$
Find a_{34}

Evaluate the related series of each sequence.

13) 1, 9, 17, 25

14) 5, 10, 15, 20, 25, 30, 35

Evaluate each arithmetic series described.

15) $\displaystyle\sum_{n=1}^{15} (-2n - 1)$

16) $\displaystyle\sum_{i=1}^{45} (4 - 8i)$

17) $\sum_{m=1}^{6} (4 - 9m)$

18) $\sum_{m=1}^{15} (7m - 17)$

19) $a_1 = 16, \ a_n = 55, \ n = 14$

20) $a_1 = -13, \ a_n = -100, \ n = 30$

21) $(-43) + (-53) + (-63) + (-73)..., \ n = 14$

22) $3 + (-4) + (-11) + (-18)..., \ n = 9$

Determine the number of terms _n_ in each arithmetic series.

23) $a_1 = -33, \ a_n = -173, \ S_n = -1545$

24) $a_1 = 9, \ a_n = 81, \ S_n = 585$

25) $a_1 = -5,\ d = 2,\ S_n = 135$

26) $a_1 = 20,\ d = 7,\ S_n = 9575$

27) $13 + 17 + 21 + 25...,\ S_n = 688$

28) $29 + 35 + 41 + 47...,\ S_n = 744$

29) $\displaystyle\sum_{m=1}^{n} (2m + 5) = 112$

30) $\displaystyle\sum_{k=1}^{n} (10k - 8) = 1080$

Answers to Arithmetic Practice (ID: 1)

1) Common Difference: $d = 9$
$a_{52} = 461$
Explicit: $a_n = 2 + (n - 1) \cdot 9$

2) Common Difference: $d = 8$
$a_{52} = 447$
Explicit: $a_n = 39 + (n - 1) \cdot 8$

3) Common Difference: $d = -2$
$a_{39} = -81$
Recursive: $a_n = a_{n-1} - 2$
$a_1 = -5$

4) Common Difference: $d = -9$
$a_{38} = -363$
Recursive: $a_n = a_{n-1} - 9$
$a_1 = -30$

5) Common Difference: $d = -7$
$a_{22} = -121$
Explicit: $a_n = 26 + (n - 1) \cdot -7$

6) Common Difference: $d = 200$
$a_{26} = 5039$
Explicit: $a_n = 39 + (n - 1) \cdot 200$

7) Common Difference: $d = -10$
$a_{31} = -310$
Explicit: $a_n = -10 + (n - 1) \cdot -10$

8) Common Difference: $d = 10$
$a_{21} = 214$
Explicit: $a_n = 14 + (n - 1) \cdot 10$

9) $a_{29} = 254$
Explicit: $a_n = 2 + (n - 1) \cdot 9$

10) $a_{29} = -191$
Explicit: $a_n = -23 + (n - 1) \cdot -6$

11) $a_{37} = 7165$
Explicit: $a_n = -35 + (n - 1) \cdot 200$

12) $a_{34} = 6634$
Explicit: $a_n = 34 + (n - 1) \cdot 200$

13) 52

14) 140

15) −255

16) −8100

17) −165

18) 585

19) 497

20) −1695

21) −1512

22) −225

23) 15

24) 13

25) 15

26) 50

27) 16

28) 12

29) 8

30) 15