

Take out your notes from yesterday!

10 - 6 = 4

(5) Given the following arithmetic sequence: 2, 6, 10, 14, ..., 18, 22

a) Define the sequence explicitly.

a1 = 2 d = 4
an = a1 + d(n-1)
an = 2 + 4(n-1)

b) Find the 15th term. n = _____

an = 2 + 4(n-1)
a15 = 2 + 4(15-1)
a15 = 2 + 4(14)
a15 = 2 + 56
a15 = 58

100 - 120 = -20

(6) Given the following arithmetic sequence: 160, 140, 120, 100, ...

a) Write an equation for the nth term.

a1 = 160 d = -20
an = a1 + d(n-1)
an = 160 - 20(n-1)

b) Find the 10th term. n = _____

a10 = 160 - 20(10-1)
a10 = 160 - 20(9)
a10 = 160 - 180
a10 = -20

Conclusion!

- > The increase or decrease in an arithmetic sequence is called the common difference.
- > The explicit formula for an arithmetic sequence allows you to find the nth term of the sequence by substituting the values of a1 (first term) and d (common difference) in the equation an = a1 + d(n-1).

★ memorize

Homework!

For #'s 1 and 2, write the next three terms of the arithmetic sequence.

1) First term: 3 ← a_1
Common difference: 11

3, 14, 25, 36

2) First term: 15
Common difference: -6

15, 9, 3, -3

For #'s 3 - 5, find the common difference of the arithmetic sequence.

3) -15, -10, -5, 0, ...



4) 240, 210, 180, 150, ...

-30

5) $2, 2\frac{1}{4}, 2\frac{1}{2}, 2\frac{3}{4}, \dots$

$\frac{1}{4}$

For #'s 6 and 7:

- (a) Write an equation for the n th term of the arithmetic sequence.
- (b) Using your equation, find a_{10} .

6) -3, -1, 1, 3, ...

$$a_{10} = 15$$

7) 2, -3, -8, -13, ...

$$a_n = a_1 + d(n-1)$$

$$a_n = 2 - 5(n-1)$$

$$a_{10} = 2 - 5(10-1)$$

$$a_{10} = 2 - 5(9)$$

$$a_{10} = 2 - 45$$

$$a_{10} = -43$$