

PRE-CALCULUS: by Finney, Demana, Watts and Kennedy  
Arithmetic Sequences and Series

What you'll Learn About  
 • Arithmetic Sequences : Adding / Subtracting by the same #

Determine if the following sequences are arithmetic. If they are give the common difference.

A) 7, 11, 15, 19, 23, ...

Common difference =  $d = 4$

↓  
 next term - previous term

$n=1$   $n=2$   $n=3$   $n=4$   
 B) 2, -3, -8, -13, ...

$d = -5$

C)  $1, \frac{5}{4}, \frac{3}{2}, \frac{7}{4}, \dots$

$d = \frac{1}{4}$

D) 1, 4, 9, 16, ...

↓ ↓ ↓  
 3 5 7

Not Arithmetic

$y = mx + b$

$a_n = dn + a_0$

$a_n = 3 - 4n - 24$   
 $a_n = -4n - 21$

Write the first 5 terms given the rule of the sequence.

10)  $a_n = 2^n$

$a_n = 2 \cdot n$

a sub n

$n=1$	$n=2$	$n=3$	$n=4$	$n=5$
$\frac{2}{a_1}$	$\frac{8}{a_2}$	$\frac{24}{a_3}$	$\frac{64}{a_4}$	$\frac{160}{a_5}$
↑				
$a_1 = 2 \cdot 1$				

16)  $a_n = 3 - 4(n + 6)$

$\frac{-25}{a_1}, \frac{-29}{a_2}, \frac{-33}{a_3}, \frac{-37}{a_4}, \frac{-41}{a_5}$

$d = -4$