

# Arithmetic Sequence - Answer Key

1. Is  $-1, 4, 9, 13, \dots$  an arithmetic sequence?  
No.
2. Is  $\frac{1}{2}, 0, -\frac{1}{2}, -1, \dots$  an arithmetic sequence?  
Yes.
3. If  $a_7 = 9$  and  $a_{11} = 1$  for an arithmetic sequence  $\{a_n\}$ , find  $a_0$  and the common difference  $d$ .  
 $a_1 = 21$  and  $d = -2$ .
4. If  $a_{100} = 80$  and  $a_{160} = 95$  for an arithmetic sequence  $\{a_n\}$ , find  $a_0$  and the common difference  $d$ .  
 $a_1 = 55.25$  and  $d = 0.25$ .
5. If  $a_k = \alpha$  and  $a_{3k+2} = \beta$  for an arithmetic sequence  $\{a_n\}$ , find  $a_0$  and the common difference  $d$ .  
 $a_1 = \frac{(3k+1)\alpha + (k-1)\beta}{2(k+1)}$  and  $\beta = \frac{\beta - \alpha}{2(k+1)}$ .
6. Is  $\frac{1}{a}, \frac{1}{a+d}, \frac{1}{a+2d}, \frac{1}{a+3d}, \dots$  an arithmetic sequence?
7. The sum of interior angles of a triangle is  $180^\circ$ , for a quadrilateral is  $360^\circ$ , and for a pentagon is  $540^\circ$ . Find the sum of interior angles of an  $n$ -gon.  
 $(n - 2) \times 180^\circ$  for  $n > 2$ .
8. Bill throws a ball from the terrace of a 60 ft building, where the penny falls 7ft in the first second, 14ft in the second second, 21 feet in the third second and so on. Approximately after how long will the ball reach the ground?  
 $8.6 \approx 9$  sec.
9. If Mary earns \$12/hr and works for 8 hours a day, how much money does she make after 5 days?  
\$480
10. In a pile of books, each layer has one book less than the previous layer. If the top layer has one book and there are 28 books, how many layers are there?  
8 layers.