

Step 2 Find the 22nd term.

$$\begin{aligned}a_n &= a_1 + (n - 1)d \\a_{22} &= 5 + (22 - 1)(-3) \\&= 5 + (21)(-3) \\&= 5 - 63 \\&= -58\end{aligned}$$

Write the rule to find the n th term.
Substitute 5 for a_1 , 22 for n , and -3 for d .
Simplify the expression in parentheses.
Multiply.
Subtract.

B 15th term: $a_1 = 7$; $d = 3$

$$\begin{aligned}a_n &= a_1 + (n - 1)d \\a_{15} &= 7 + (15 - 1)3 \\&= 7 + (14)3 \\&= 7 + 42 \\&= 49\end{aligned}$$

Write the rule to find the n th term.
Substitute 7 for a_1 , 15 for n , and 3 for d .
Simplify the expression in parentheses.
Multiply.
Add.



Find the indicated term of each arithmetic sequence.

2a. 60th term: 11, 5, -1 , -7 , ... 2b. 12th term: $a_1 = 4.2$; $d = 1.4$

COMMON
CORE GPS

EXAMPLE
MCC9-12.F.LE.2

3

Travel Application



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The odometer on a car reads 60,473 on day 1. Every day, the car is driven 54 miles. If this pattern continues, what is the odometer reading on day 20?

Notice that the sequence for the situation is arithmetic with $d = 54$ because the odometer reading will increase by 54 miles per day.

Since the odometer reading on day 1 is 60,473 miles, $a_1 = 60,473$.

Since you want to find the odometer reading on day 20, you will need to find the 20th term of the sequence, so $n = 20$.

$$\begin{aligned}a_n &= a_1 + (n - 1)d \\a_{20} &= 60,473 + (20 - 1)54 \\&= 60,473 + (19)54 \\&= 60,473 + 1026 \\&= 61,499\end{aligned}$$

Write the rule to find the n th term.
Substitute 60,473 for a_1 , 54 for d , and 21 for n .
Simplify the expression in parentheses.
Multiply.
Add.

The odometer will read 61,499 miles on day 20.



3. Each time a truck stops, it drops off 250 pounds of cargo. After stop 1, its cargo weighed 2000 pounds. How much does the load weigh after stop 6?

MCC.MP.3

MATHEMATICAL
PRACTICES

THINK AND DISCUSS

1. Explain how to determine if a sequence appears to be arithmetic.
2. **GET ORGANIZED** Copy and complete the graphic organizer with steps for finding the n th term of an arithmetic sequence.



Finding the n th Term of an
Arithmetic Sequence

1.

2.