

# Consecutive Integer Word Problems

**Consecutive integers** are usually positive numbers that are found in sequential order.

There are three types:

**Consecutive integers** are, for example, 7, 8, and 9. The difference between them is 1.

Example: To solve three consecutive integers:

$$\begin{aligned}\text{Let } x &= \text{first integer} \\ x + 1 &= \text{second integer} \\ x + 2 &= \text{third integer}\end{aligned}$$

**Consecutive odd integers** are, for example, 7, 9, and 11. The difference between consecutive *odd* integers is 2. The first integer in the sequence must be *odd*.

Example: To solve three consecutive odd integers:

$$\begin{aligned}\text{Let } x &= \text{first odd integer} \\ x + 2 &= \text{second odd integer} \\ x + 4 &= \text{third odd integer}\end{aligned}$$

**Consecutive even integers** are, for example, 6, 8, and 10. The difference between consecutive *even* integers is 2. The first integer in the sequence must be even.

Example: To solve three consecutive even integers:

$$\begin{aligned}\text{Let } x &= \text{first even integer} \\ x + 2 &= \text{second even integer} \\ x + 4 &= \text{third even integer}\end{aligned}$$

Consecutive integer problems will *always* be addition. To solve, add the first, second, and third integer equaling them to the sum.



**Example** Find three consecutive *odd* integers whose sum is 63.

$$\begin{aligned}\text{Let } x &= \text{first odd integer} \\ x + 2 &= \text{second odd integer} \\ x + 4 &= \text{third odd integer}\end{aligned}$$

$$\begin{aligned}\text{first} + \text{second} + \text{third} &= \text{sum} \\ x + x + 2 + x + 4 &= 63 \\ 3x + 6 &= 63 \\ 3x &= 57 \\ x &= 19\end{aligned}$$

Solve  $x = 19 = \text{first integer}$   
 $x + 2 = 21 = \text{second integer}$   
 $x + 4 = 23 = \text{third integer}$

**Solution:** The three consecutive integers that add to 63 are 19, 21, and 23.



## Practice

1. Find three consecutive integers whose sum is 39.
2. Find three even integers whose sum is 162.
3. Find three consecutive integers whose sum is 264.
4. The sum of three consecutive odd integers is 69. Find the three integers.
5. The sum of two consecutive odd integers is 204. Find the two integers.