

# CONSECUTIVE INTEGER PROBLEMS

1) Choose the “type” of consecutive integers:

| Consecutive Integers                                      | Consecutive<br><b>Even</b> or <b>Odd</b> Integers         |
|---|---|
| 1st # = $x$<br>2nd # = $x + 1$<br>3rd # = $x + 2$<br>etc. | 1st # = $x$<br>2nd # = $x + 2$<br>3rd # = $x + 4$<br>etc. |

The first number is *always*  $x$ .

2) Set up an equation that does what the problem tells you to do (often just add them up and set equal to a number).

3) Solve the equation for  $x$ .

4) Answer the question using the value of  $x$  you just found (usually just substitute the value of  $x$  into each of the consecutive integers).

# Examples

- 1) Find two consecutive integers whose sum is 95.

Let  $x$  = the first integer.

Let  $x + 1$  = the second integer.

47 = the first integer.

47 + 1 = 48 = the second integer.

47 and 48

$$\begin{array}{r}
 x + x + 1 = 95 \\
 2x + 1 = 95 \\
 \underline{-1 \quad -1} \\
 2x = 94 \\
 \underline{2 \quad 2} \\
 x = 47
 \end{array}$$

- 2) The sum of the ages of the three Rodriguez brothers is 63.

If their ages can be represented as consecutive integers, what is the age of the middle brother?

Let  $x$  = the youngest brother.

Let  $x + 1$  = the middle brother.

Let  $x + 2$  = the oldest brother.

20 + 1 = 21 = the middle brother.

21

$$\begin{array}{r}
 x + x + 1 + x + 2 = 63 \\
 3x + 3 = 63 \\
 \underline{-3 \quad -3} \\
 3x = 60 \\
 \underline{3 \quad 3} \\
 x = 20
 \end{array}$$

- 3) Find three consecutive even integers such that the sum of the smallest integer and twice the second is 12 more than the third.

Let  $x$  = the smallest even integer.

Let  $x + 2$  = the second even integer.

Let  $x + 4$  = the third even integer.

6 = the smallest even integer.

6 + 2 = 8 = the second even integer.

6 + 4 = 10 = the third even integer.

6, 8, and 10

$$\begin{array}{r}
 x + 2(x + 2) = (x + 4) + 12 \\
 x + 2x + 4 = x + 4 + 12 \\
 3x + 4 = x + 16 \\
 \underline{-x \quad -x} \\
 2x + 4 = 16 \\
 \underline{-4 \quad -4} \\
 2x = 12 \\
 \underline{2 \quad 2} \\
 x = 6
 \end{array}$$