

## 4-3 Consecutive Integer Problems

- Consecutive means one after the next in order. (Example:  $a, b, c$   
 $1, 2, 3$ )

Examples:

- Three consecutive integers:  $\frac{1}{x}, \frac{2}{x+1}, \frac{3}{x+2}$
- Three consecutive even integers:  $\frac{2}{x}, \frac{4}{x+2}, \frac{6}{x+4}$
- Three consecutive odd integers:  $\frac{1}{x}, \frac{3}{x+2}, \frac{5}{x+4}$

} same rules for  
evens +  
odds.

**Example 1:** Find three consecutive integers whose sum is 126.

1st	X	41
2nd	X+1	42
3rd	X+2	43

$$X + X + 1 + X + 2 = 126$$

$$3x + \frac{3}{3} = \frac{126}{3}$$

$$\frac{3x}{3} = \frac{123}{3} \quad \boxed{x = 41}$$

**Example 2:** Find four consecutive even integers whose sum is 60.

1st	X	12
2nd	X+2	14
3rd	X+4	16
4th	X+6	18

$$4x + 12 = 60$$

$$\frac{-12}{-12} \quad \frac{-12}{-12}$$

$$\frac{4x}{4} = \frac{48}{4}$$

$$\boxed{x = 12}$$

(1) Find two consecutive integers whose sum is 61.

1st	X	30
2nd	X+1	31

$$2x + 1 = 61$$

$$\frac{-1}{-1} \quad \frac{-1}{-1}$$

$$\frac{2x}{2} = \frac{60}{2}$$

$$\boxed{x = 30}$$

(2) Find three consecutive integers whose sum is 33.

1st	X	10
2nd	X+1	11
3rd	X+2	12

$$3x + 3 = 33$$

$$\frac{-3}{-3} \quad \frac{-3}{-3}$$

$$\frac{3x}{3} = \frac{30}{3}$$

$$\boxed{x = 10}$$



(3) Find two consecutive integers whose sum is 65.

1st	X	32
2nd	X+1	33

$$\begin{array}{r} 2x + 1 = 65 \\ \underline{-1} \quad \underline{-1} \\ 2x = 64 \end{array}$$

$$\frac{2x}{2} = \frac{64}{2}$$

$$x = 32$$

(4) Find two consecutive integers whose sum is -17.

(5) Find two consecutive integers whose sum is 91.

1st	X	45
2nd	X+1	46

$$\begin{array}{r} 2x + 1 = 91 \\ \underline{-1} \quad \underline{-1} \\ 2x = 90 \end{array}$$

$$\frac{2x}{2} = \frac{90}{2}$$

$$x = 45$$

(6) Find two consecutive even integers whose sum is 26.

(7) Find three consecutive even integers whose sum is 54.

1st	X	16
2nd	X+2	18
3rd	X+4	20

$$\begin{array}{r} 3x + 6 = 54 \\ \underline{-6} \quad \underline{-6} \\ 3x = 48 \end{array}$$

$$\frac{3x}{3} = \frac{48}{3}$$

$$x = 16$$

(8) Find two consecutive odd integers whose sum is 128.

(9) Find three consecutive integers such that the sum of the first and the third is 16.

1st	X	7
2nd	X+1	8
3rd	X+2	9

$$\begin{array}{r} 2x + 2 = 16 \\ \underline{-2} \quad \underline{-2} \\ 2x = 14 \end{array}$$

$$\frac{2x}{2} = \frac{14}{2}$$

$$x = 7$$

(10) Find three consecutive odd integers such that the sum of the first and the third equals the sum of the second and 43.

(11) Find four consecutive integers such that the sum of the 2<sup>nd</sup> and the 4<sup>th</sup> is 42.

1st	X	19
2nd	X+1	20
3rd	X+2	21
4th	X+3	22

$$\begin{array}{r} 2x + 4 = 42 \\ \underline{-4} \quad \underline{-4} \\ 2x = 38 \end{array}$$

$$\frac{2x}{2} = \frac{38}{2}$$

$$x = 19$$

(12) The lengths of a triangle are consecutive odd integers. What is the length of the smallest side of the perimeter is 54 inches?