

12-22-17

Aim: SWBAT solve consecutive integer equations.

HW: None

Do Now: Let's correct hw

2) Find two consecutive odd integers whose sum is 88.

let  $n$  = the 1<sup>st</sup> consecutive odd integer  
 let  $n+2$  = the 2<sup>nd</sup> consecutive odd integer

$$\begin{array}{r} n + (n+2) = 88 \\ 2n + 2 = 88 \\ \underline{-2 \quad -2} \\ 2n = 86 \\ \underline{\phantom{2} \phantom{2}} \\ n = 43 \end{array} \quad n+2 = 45$$

The consecutive odd integers are 43 and 45.

3) Find two consecutive even integers whose sum is 226.

let  $n$  = the 1<sup>st</sup> consecutive even integer.  
 let  $n+2$  = the 2<sup>nd</sup> consecutive even integer

$$\begin{array}{r} n + (n+2) = 226 \\ 2n + 2 = 226 \\ \underline{-2 \quad -2} \\ 2n = 224 \\ \underline{\phantom{2} \phantom{2}} \\ n = 112 \end{array} \quad n+2 = 114$$

The consecutive even integers are 112 and 114

4) Find three consecutive odd integers whose sum is -165.

let  $n$  = the 1<sup>st</sup> consecutive odd integer  
 let  $n+2$  = the 2<sup>nd</sup> consecutive odd integer  
 let  $n+4$  = the 3<sup>rd</sup> consecutive odd integer

$$\begin{array}{r} n + (n+2) + (n+4) = -165 \\ 3n + 6 = -165 \\ \underline{-6 \quad -6} \\ 3n = -171 \\ \underline{\phantom{3} \phantom{2}} \\ n = -57 \\ n+2 = -55 \\ n+4 = -53 \end{array}$$

The consecutive odd integers are -57, -55, and -53.

**HW: Solving Consecutive Integer Word Problems**

Define a variable, write an equation, and solve each word problem.

1) The sum of three consecutive integers is -57. Find the three integers.

let  $n$  = the 1<sup>st</sup> cons. integer  
 let  $n+1$  = the 2<sup>nd</sup> "  
 let  $n+2$  = the 3<sup>rd</sup> " "

$$\begin{array}{r} n + (n+1) + (n+2) = -57 \\ 3n + 3 = -57 \\ \underline{-3 \quad -3} \\ 3n = -60 \\ \underline{\phantom{3} \phantom{2}} \\ n = -20 \\ n+1 = -19 \\ n+2 = -18 \end{array}$$

The consecutive integers are -20, -19, and -18.

2) The sum of three consecutive even integers is -42. Find the three integers.

let  $n$  = the 1<sup>st</sup> cons. even integer  
 let  $n+2$  = the 2<sup>nd</sup> "  
 let  $n+4$  = the 3<sup>rd</sup> "

$$n + (n+2) + (n+4) = -42$$

$$\begin{array}{r} 3n + 6 = -42 \\ -6 \quad -6 \\ \hline 3n = -48 \\ 3 \quad 3 \\ \hline n = -16 \\ n+2 = -14 \\ n+4 = -12 \end{array}$$

The integers are -16, -14, and -12.

\*\*3) Find two consecutive odd integers such that 2 times the lesser is 19 less than 3 times the greater.

let  $n$  = the 1<sup>st</sup> cons. odd integer  
 let  $n+2$  = the 2<sup>nd</sup> "

$$2n = 3(n+2) - 19$$

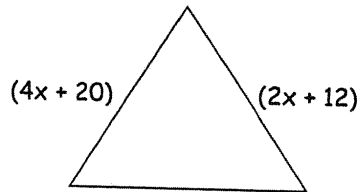
$$2n = 3n + 6 - 19$$

$$2n = 3n - 13$$

$$\begin{array}{r} -3n \quad -3n \\ \hline -n = -13 \\ +1 \quad +1 \\ \hline n = 13 \\ n+2 = 15 \end{array}$$

The consecutive odd integers are 13 and 15.

\*\*\*4) Find the perimeter of the triangle. All sides of the triangle are equal in length. Your final answer should include units.



$$\begin{array}{r} 4x + 20 = 2x + 12 \\ -2x \quad -2x \\ \hline 2x + 20 = 12 \\ -20 \quad -20 \\ \hline 2x = -8 \\ 2 \quad 2 \\ \hline x = -4 \end{array}$$

$$\begin{array}{r} 4x + 20 \\ 4(-4) + 20 \\ -16 + 20 \\ 4 \end{array}$$

$$\begin{array}{r} 2x + 12 \\ 2(-4) + 12 \\ -8 + 12 \\ 4 \end{array}$$

$P = 4 + 4 + 4$   
 $P = 12 \text{ units}$