12-21-17

Aim: SWBAT solve consecutive integer equations.

HW: Packet Pages 40 - 41

Do Now: Packet Page 39 # 1 - 3

Homework "2-Step Equation Word Problems"

Remember you define a variable by identifying what it is you are looking for in the problem.

For Example: Find the number. Let x = the number
How much does one shirt cost? Let x = Cost of one shirt

Define a variable, write an equation and solve each word problem. Your final answer must be a complete sentence.

1) Four times a number plus 75 is 23. Find the number.

let n = the #

$4n + 75 = 23$
$-75 \quad -75$
$\frac{4n}{4} = \frac{-52}{4}$
$n = -13$

The number is -13.

2) Three times a number plus -8 is -29. Find the number.

let n = the #

$3n + (-8) = -29$
$+8 \quad +8$
$\frac{3n}{3} = \frac{-21}{3}$
$n = -7$

The number is -7.

3) Six less than twice a number is -14. Find the number.

let n = the #

$2n - 6 = -14$
$+6 \quad +6$
$\frac{2n}{2} = \frac{-8}{2}$
$n = -4$

The number is -4.

4) Five less than three times a number is 25. Find the number.

let n = the #

$3n - 5 = 25$
$+5 \quad +5$
$\frac{3n}{3} = \frac{30}{3}$
$n = 10$

The number is 10.

5) Frank bought two shirts for $38. He paid $4 more for one than for the other. How much did he pay for each shirt?

let n = cost of 1st shirt
let n+4 = cost of 2nd shirt

$n + (n+4) = 38$
$2n + 4 = 38$
$-4 \quad -4$
$\frac{2n}{2} = \frac{34}{2}$
$n = 17$
$n + 4 = 21$

The 1st shirt costs $17 and the 2nd shirt costs $21.

6) Colleen spent $105 on two pairs of shoes. One pair cost $5 more than the other pair. How much did she pay for each pair of shoes?

let x = cost of the 1st pair
let x+5 = cost of the 2nd pair

$x + (x+5) = 105$
$2x + 5 = 105$
$-5 \quad -5$
$\frac{2x}{2} = \frac{100}{2}$
$x = 50$
$x + 5 = 55$

The shoes cost $50 and $55.

7) A class of 28 students has three times as many boys as girls. How many of the students are girls?

let x = # of girls
let 3x = # of boys

$x + 3x = 28$
$\frac{4x}{4} = \frac{28}{4}$
$x = 7$

There are seven girls.

8) A coat and pants cost $78.50. If the cost of the coat was $31.70 more than the cost of the pants, how much did each item cost?

let x = cost of the pants
let x + 31.70 = cost of the coat

$x + x + 31.70 = 78.50$
$2x + 31.70 = 78.50$
$-31.70 \quad -31.70$
$\frac{2x}{2} = \frac{46.80}{2}$
$x = 23.40$

The pants cost $23.40 and the coat cost $55.10.

15

Homework (continued) - Word Problems using Equations with Variables on Both Sides

Directions: Define a variable (write a let statement). Then write an equation and solve each word problem. Write your final answer in a complete sentence.

1) When two times a number is increased by 10, the result is 1 more than 3 times the number. Find the number.

let n = the number

$2n+10 = 3n+1$
$-2n \quad -2n$
$10 = n+1$
$-1 \quad -1$
$9 = n$

The number is 9.

2) The greater of two numbers is 7 more than the lesser. Three times the greater number is 5 more than 4 times the lesser number. Find the numbers.

let n = the lesser #
let $n+7$ = the greater #

$3(n+7) = 4n+5$
$3n+21 = 4n+5$
$-3n \quad -3n$
$21 = n+5$
$-5 \quad -5$
$16 = n$

$n+7 = 23$

The numbers are 16 and 23.

3) The greater of two numbers is twice the lesser. If the greater is increased by 18, the result is 4 less than 4 times the lesser. Find the numbers.

let n = the lesser #
let $2n$ = the greater #

$2n+18 = 4n-4$
$-2n \quad -2n$
$18 = 2n-4$
$+4 \quad +4$
$\frac{22}{2} = \frac{2n}{2}$
$11 = n$

$22 = 2n$

The numbers are 11 and 22.

4) The greater of two numbers is 1 less than 4 times the lesser. Three times the lesser number is 4 less than the greater. Find the numbers.

let n = the lesser #
let $4n-1$ = the greater #

$3n = 4n-1-4$
$3n = 4n-5$
$-4n \quad -4n$
$\frac{-n}{-1} = \frac{-5}{-1}$
$n = 5$

The numbers are 5 and 19.

28

Aim: SWBAT review solving word problems using and equation AND solve consecutive integer word problems.

Do Now: For #1 and #2 → Define a variable, write an equation and solve.

1) Twice the difference of a number and 4 is -12.

let n = the #

$2(n-4) = -12$

$2n - 8 = -12$

$+8 \quad +8$

$\frac{2n}{2} = \frac{-4}{2}$

$n = -2$

The number is -2.

2) Marc bought a shirt and a pair of pants at his favorite store. The total price of the two items was $54. If the pants cost $16 more than the shirt, find the cost of the pants and the shirt.

let x = the cost of the shirt

let x+16 = " " pants

$x + (x+16) = 54$

$2x + 16 = 54$

$-16 \quad -16$

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

$x = 19$

$x + 16$

35

3) What are consecutive integers? Give an example of 2 consecutive integers.

_____

_____

Notes.

Consecutive Integer Word Problems

Step 1: Define your variable. (Write a let statement)

Step 2: Write an additional let statement for each integer.

Step 3: Write an equation.

Step 4: Solve your equation.

Step 5: Plug in and find the integers.

Step 6: Check your answers.

1) Find two consecutive integers whose sum is -67.

let n = the 1st cons. int.

let n+1 = the 2nd " "

$n + (n+1) = -67$

$2n + 1 = -67$

$-1 \quad -1$

$\frac{2n}{2} = \frac{-68}{2}$

$n = -34$

$n + 1 = -33$

The integers are -34 and -33.

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

let n = the 1st cons. odd int
let $n+2$ = the 2nd " "

$n+(n+2)=88$
$2n+2=88$
$-2 \quad -2$
$\frac{2n}{2} = \frac{86}{2}$
$n = 43$
$n+2 = 45$

The integers are 43 and 45.

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

let n = the 1st cons. even int.
let $n+2$ = the 2nd " "

$n+(n+2)=226$
$2n+2=226$
$-2 \quad -2$
$\frac{2n}{2} = \frac{224}{2}$
$n = 112$
$n+2 = 114$

The integers are 112 and 114.

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

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.

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

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

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