

Consecutive Integers - positive or negative counting numbers that are next to each other.

Example: -9, -8, -7, -6

Pg. 97

or

12, 13, 14, 15

Writing Simple Systems

MGSE9-12.A.CED.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret data points as possible (i.e. a solution) or not possible (i.e. a non-solution) under the established constraints.

MGSE9-12.A.CED.2 Create linear, quadratic, and exponential equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. (The phrase “in two or more variables” refers to formulas like the compound interest formula, in which $A = P(1 + r/n)^{nt}$ has multiple variables.)

What am I learning today?

How to write a system of equations from a scenario

How will I show that I learned it?

Write a system of equations and solve using my 3 techniques

Ex. A) The older brother Bob is two years older than his little sister Alice. Taken together, the sum of their ages is 8. How old is each sibling?

$B = \text{Bob's age}$
 5 yrs old
 $A = \text{Alice's age}$
 3 yrs old

Bob is 5 yrs old
 Alice is 3 yrs old.

$$\left. \begin{array}{l} B = A + 2 \\ A + B = 8 \end{array} \right\} \begin{array}{l} \text{substitution} \end{array}$$

$$A + A + 2 = 8$$

$$2A + 2 = 8$$

$$\begin{array}{r} -2 \quad -2 \\ \hline \end{array}$$

$$\frac{2A}{2} = \frac{6}{2}$$

$$A = 3$$

Ex. B) The sum of 3 consecutive integers is 18.
What are the 3 integers?

$$\underline{x} + \underline{x+1} + \underline{x+2} = 18$$

$$\begin{array}{r} 3x + 3 = 18 \\ \underline{-3 \quad -3} \end{array}$$

$$x = 5 \quad \frac{3x = 15}{3} \quad \frac{15}{3}$$

The integers are 5, 6, 7

Ex. C) The average of 4 test scores was an 85. If the student made a 90, an 85, and a 75 on the first 3 tests, what did the student make on the 4th test?

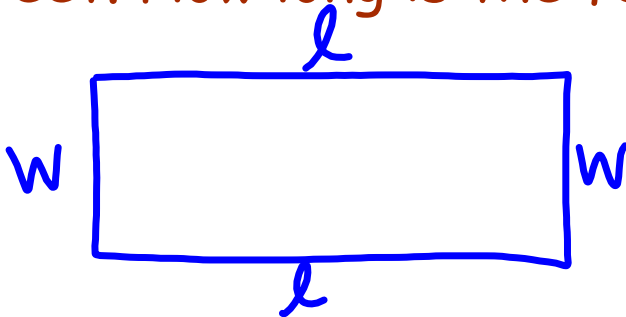
$$\frac{90 + 85 + 75 + X}{4} = 85$$

$$4 \left(\frac{250 + X}{4} \right) = (85)4$$

$$\begin{array}{r} 250 + X = 340 \\ -250 \quad \quad -250 \\ \hline X = 90 \end{array}$$

Student made 90 on 4th test.

Ex. D) You are building a fence. The length is 3 times the width. The total perimeter is 72 feet. How long is the fence?



$$2l + 2w = 72$$

$$l = 3w \leftarrow 9$$

substitution

$$l = 3(9)$$

The length is 27 feet!

$$2(3w) + 2w = 72$$

$$6w + 2w = 72$$

$$\frac{8w}{8} = \frac{72}{8}$$

$$w = 9$$

Ex. E) You have 2 credit cards. You owe \$200 on credit card A and are paying off \$20 each month. You owe \$120 on credit card B and are paying off \$10 each month. When will you owe the same on each credit card? How much will you owe on each?

$$A = -20m + 200$$

$$B = -10m^{(8)} + 120$$

$$A = B$$

$$\begin{array}{r} -20m + 200 = -10m + 120 \\ +10m \qquad \qquad \qquad +10m \end{array}$$

$$\begin{array}{r} -10m + 200 = 120 \\ -200 \qquad \qquad \qquad -200 \end{array}$$

$$\begin{array}{r} -10m = -80 \\ \hline -10 \qquad \cdot -10 \end{array}$$

$$m = 8$$

of months

In 8 months they will be the same and I will owe \$40 on each.