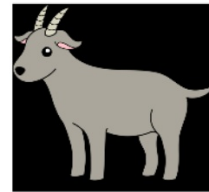


# Today

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## Lesson: Easy Story Problems



## Systems of Equations: Applications (easy story problems)

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- Look for Two Equations
  - Find 2 variables and 2 totals
- Recognize Basic Types (patterns)

**To Start: READ the problem**

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- Identify the 2 Variables
- Identify 2 Totals

3 Examples

## 1 Look For Variables and Totals

Sydeny spent \$20 on writing utensils. Pens cost \$4 and pencils cost \$1. If she bought a total of 8 writing utensils, how many pens and pencils did she buy?

- Identify the 2 Variables

Pens  $x$  Pencils  $y$



- Identify 2 Totals

\$20      8



## Use the Totals to Write 2 Equations

Sydney spent \$20 on writing utensils. Pens cost \$4 and pencils cost \$1. If she bought a total of 8 writing utensils, how many pens and pencils did she



$$\begin{aligned} 4x + 1y &= \$20 \\ x + y &= 8 \end{aligned}$$



Then solve to find the number of Pens and Pencils. (any method you prefer)  
Check your solution!

$$\begin{array}{r} 4x + 1y = \$20 \\ - ( \begin{array}{l} x + y = 8 \\ \text{pens} \quad \text{pencils} \end{array} ) \end{array}$$

$$\begin{array}{r} 4x + y = 20 \\ - x - y = -8 \end{array}$$

$$\frac{3x}{3} = \frac{12}{3}$$

$$\begin{array}{l} x = 4 \\ y = 4 \end{array}$$

4 pens  
4 pencils

2

## Look For Variables and Totals

A class used cars and vans to go on a field trip. They used 15 vehicles all together. Each van holds 10 students and each car holds 3. If 101 students went on the trip, how many of each type of vehicle did the class use? ■ Identify the 2 Variables



Cars  $c$  Vans  $v$

■ Identify 2 Totals

15 101

## Use the Totals to Write 2 Equations

A class used cars and vans to go on a field trip. They used 15 vehicles all together. Each van holds 10 students and each car holds 3. If 101 students went on the trip, how many of each type of vehicle did the class use?



8 vans  
7 cars

$$v + c = 15$$

$$10v + 3c = 101$$

$$-3(v + c = 15)$$

$$10v + 3c = 101$$

$$-3v - 3c = -45$$

$$10v + 3c = 101$$

$$7v = 56$$

$$v = 8$$

$$8 + c = 15$$

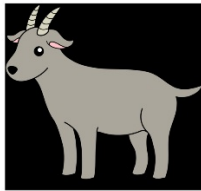
$$c = 7$$



3

## Look For Variables and Totals

There are 29 animals in a barn. Some are chickens and some are goats. There are 98 legs in all. How many of each animal are there?



■ Identify the 2 Variables

C      g

■ Identify 2 Totals

29      98

## Use the Totals to Write 2 Equations

There are 29 animals in a barn. Some are chickens and some are goats. There are 98 legs in all. How many of each animal are there?

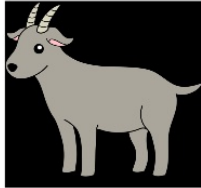


Legs?

2

$$c + g = 29$$

$$2c + 4g = 98$$



4

$$\begin{array}{r} -2(c + g = 29) \\ 2c + 4g = 98 \\ \hline \end{array}$$

20 goats  
9 chickens

$$\begin{array}{r} -2c - 2g = -58 \\ 2c + 4g = 98 \\ \hline 2g = 40 \\ g = 20 \end{array}$$

## **Homework**

**Write the System for all #1-16**

**Solve 5 of them in your spiral**

**(You Pick!)**

**Check your solution - GET 100%**