

Unit 5 Day 16 Homework - Application Problems

Name: Key

(1-2) Solve the systems of equations using any method you would like.

$$\begin{array}{r} 1) \quad x - y = 5 \\ \quad 2x - 3y = 5 \end{array} \Rightarrow \begin{array}{r} 2x - 2y = 10 \\ \quad 2x - 3y = 5 \end{array}$$

$$x - (-3) = 5$$

$$x + 3 = 5$$

$$\boxed{x=2}$$

$$-5y = 15$$

$$\boxed{y=-3}$$

$(2, -3)$

$$\begin{array}{r} 2) \quad 6x - 3y = 15 \\ \quad 3x + 3y = 12 \end{array}$$

$$9x = 27$$

$$\boxed{x=3}$$

$(3, 1)$

$$6(3) - 3y = 15$$

$$18 - 3y = 15$$

$$-3y = -3$$

$$\boxed{y=1}$$

3) Shel Silverstein bought 10 books from Borders. The travel books cost \$14 each and the fiction books cost \$12. Shel spent \$126. How many of each kind of book did she buy?

$x = \text{Travel Books}$ $y = \text{Fiction Books}$

$$\text{\$} : 14x + 12y = 126$$

$$\text{Items} : x + y = 10 \Rightarrow y = \boxed{-x + 10}$$

$$14x + 12(-x + 10) = 126$$

$$14x - 12x + 120 = 126$$

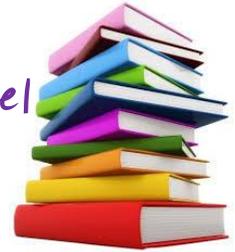
$$2x = 6$$

$$\boxed{x=3}$$

$$y = -3 + 10$$

$$\boxed{y=7}$$

Shel bought 3 travel books and 7 fiction books.



Flip to the back for more fun!! ©

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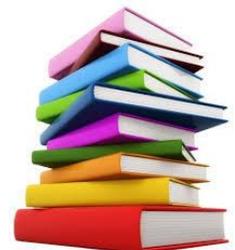
$$1) \quad x - y = 5$$

$$2x - 3y = 8$$

$$2) \quad 6x - 3y = 15$$

$$3x + 3y = 12$$

3) Shel Silverstein bought 10 books from Borders. The travel books cost \$14 each and the fiction books cost \$12. Shel spent \$126. How many of each kind of book did she buy?



Flip to the back for more fun!! ©

4) Ray Norshine owns 90 animals, only ducks and cows. He likes to put boots on the animals to keep their hoofs/feet warm in the winter. All together Ray Norshine has 300 hoofs/feet to put boots on. How many cows does Ray own? (Hint: Think about how many feet/hoofs ducks and cows have)



$x = \text{ducks}$ $y = \text{cows}$
 Boots: $2x + 4y = 300 \Rightarrow 2x + 4y = 300$
 # animals: $(x + y = 90) \Rightarrow -2x - 2y = -180$
 $x + 60 = 90$ $2y = 120$
 $x = 30$ $y = 60$
Ray owns 60 cows!
 M O O O O

5) Apples cost \$2.00 per pound. Bananas cost \$3.00 per pound. Mabel Syrup spent \$110.00 on her church's soup kitchen and bought a total of 40 pieces of fruit. How many of each fruit did she buy?

$x = \text{apples}$ $y = \text{Bananas}$
 \$: $2x + 3y = 110.00 \Rightarrow 2x + 3y = 110$
 Items: $(x + y = 40) \Rightarrow -2x - 2y = -80$
 $x + 30 = 40$ $y = 30$
 $x = 10$
Mabel bought 10 apples and 30 bananas!



4) Ray Norshine owns 90 animals, only ducks and cows. He likes to put boots on the animals to keep their hoofs/feet warm in the winter. All together Ray Norshine has 300 hoofs/feet to put boots on. How many cows does Ray own? (Hint: Think about how many feet/hoofs ducks and cows have)



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