

Bell Ringer

Wednesday 10/23

A company that offers tubing trips down a river rents tubes for a person to use and "cooler" tubes to carry food and water. A group spends \$270 to rent a total of 15 tubes.

x : # 1 tubes (11)

y : # cooler tubes (4)

1. Write a system of linear equations that represents this situation.

$$\begin{aligned} x + y &= 15 \\ 20x + 12.5y &= 270 \end{aligned}$$



Use this info!

2. How many of each type of tube does the group rent?

$$\begin{aligned} 20x + 12.5(15 - x) &= 270 \\ 20x + 187.5 - 12.5x &= 270 \\ 7.5x &= 82.5 \\ \frac{7.5x}{7.5} &= \frac{82.5}{7.5} \\ x &= 11 \end{aligned}$$

5.4 online hw due today!

Ch 4 Test Retake due Tues 10/29

WHITEBOARDS

Car Rental Company A charges \$75 daily plus \$.50 per mile driven. Car Rental Company B charges \$80 for one day plus \$.75 per mile driven. Write a system of equations to represent the car companies.



$$\begin{aligned} A: & y = 75 + .5x \\ B: & y = 80 + .75x \end{aligned}$$

Which method would you choose to solve the system?

$$y = 3x - 1$$

$$y = 4x$$

A fashion designer makes and sells hats. Material for each hat costs \$5.50. She sells the hats for \$12.50 each. The designer also spends \$1400 on advertising. How many hats must she sell to break even?



Expense = Income

$$y = 5.5x + 1400$$

$$y = 12.5x$$

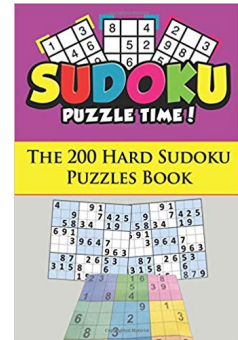
A puzzle expert wrote a new Sudoku book. His initial costs are \$864. Binding and packaging each book costs \$.80. He sells the books for \$2 each. How many copies must he sell in order to break even?

$$y = 864 + .8x$$

$$y = 2x$$

720 books

$$\begin{array}{r}
 864 + .8x = 2x \\
 - .8x \quad - .8x \\
 \hline
 864 = 1.2x \\
 \frac{864}{1.2} = \frac{1.2x}{1.2}
 \end{array}$$



Which method would you choose to solve the system?

$$3x - 4y = 1$$

$$3x - 2y = -1$$

The local zoo is filling two water tanks for the elephant exhibit. One tank contains 50 gal of water and is filled at a rate of 10 gal/hr. The second water tank contains 29 gal of water and is filled at a rate of 3 gal/hr. When will the two tanks have the same amount of water?



$$50 + 10x$$

$$29 + 3x$$

No sol

Which method would you choose to solve the system?

$$4x - 3y = 8$$

$$y = -2x - 1$$

Printing newsletters costs \$1.50 per copy plus \$450 in printer's fees. The copies are sold for \$3 each. How many copies must be sold to break even?



$$y = 450 + 1.5x$$
$$y = \boxed{3x}$$

$$\begin{array}{r} 3y = 450 + 1.5x \\ -1.5x \\ \hline 1.5y = 450 \end{array} \quad \begin{array}{r} -1.5x \\ \\ \hline x = 300 \end{array}$$

You have a jar of pennies and quarters. You want to choose 15 coins that are worth exactly \$1.83. Write and solve a system that models the situation. How many of each coin should you grab?



x : # of pennies - 8
 y : # of quarters - 7

$$\begin{aligned}
 x + y &= 15 - x \\
 .01x + .25y &= 1.83 \\
 .01x + .25(15 - x) &= 1.83 \\
 .01x + 3.75 - .25x &= 1.83 \\
 \underline{-.24x} &= \underline{-1.92} \quad x = 8
 \end{aligned}$$

due Friday

Math 1 Honors

Name _____

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Applications of Systems ws

Date _____ Hour _____

- 1) Trevon and Abhasra are selling fruit for a school fundraiser. Customers can buy small boxes of grapefruit and large boxes of grapefruit. Trevon sold 1 small box of grapefruit and 3 large boxes of grapefruit for a total of \$60. Abhasra sold 8 small boxes of grapefruit and 6 large boxes of grapefruit for a total of \$174. Find the cost each of one small box of grapefruit and one large box of grapefruit.

- 2) The senior classes at High School A and High School B planned separate trips to the county fair. The senior class at High School A rented and filled 6 vans and 12 buses with 696 students. High School B rented and filled 12 vans and 1 bus with 242 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

- 3) The school that Kristin goes to is selling tickets to a play. On the first day of ticket sales the school sold 11 senior citizen tickets and 14 child tickets for a total of \$217. The school took in \$105 on the second day by selling 5 senior citizen tickets and 7 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

- 4) Mark and Huong each improved their yards by planting hostas and ornamental grass. They bought their supplies from the same store. Mark spent \$72 on 3 hostas and 6 bunches of ornamental grass. Huong spent \$136 on 12 hostas and 5 bunches of ornamental grass. What is the cost of one hosta and the cost of one bunch of ornamental grass?

- 5) Jasmine and Mike are selling wrapping paper for a school fundraiser. Customers can buy rolls of plain wrapping paper and rolls of holiday wrapping paper. Jasmine sold 14 rolls of plain wrapping paper and 12 rolls of holiday wrapping paper for a total of \$246. Mike sold 7 rolls of plain wrapping paper and 9 rolls of holiday wrapping paper for a total of \$153. Find the cost each of one roll of plain wrapping paper and one roll of holiday wrapping paper.

- 6) Ndiba and Shreya each improved their yards by planting grass sod and geraniums. They bought their supplies from the same store. Ndiba spent \$107 on 7 ft² of grass sod and 6 geraniums. Shreya spent \$204 on 12 ft² of grass sod and 12 geraniums. Find the cost of one ft² of grass sod and the cost of one geranium.

$d = r \cdot t$ A boat traveled 120 miles downstream and back. The trip downstream took 3 hours. The trip back took 6 hours. Find the speed of the boat in still water and the speed of the current.

x : boat speed
 y : current speed

$$\begin{aligned} 3x + 3y &= 120 \\ 6x - 6y &= 120 \end{aligned}$$

- 8) The school that Jacob goes to is selling tickets to a fall musical. On the first day of ticket sales the school sold 8 adult tickets and 11 student tickets for a total of \$135. The school took in \$35 on the second day by selling 2 adult tickets and 3 student tickets. What is the price each of one adult ticket and one student ticket?

$d = r \cdot t$ 9) A plane traveled 432 miles to Tokyo and back. The trip there was with the wind. It took 4 hours. The trip back was into the wind. The trip back took 8 hours. Find the speed of the plane in still air and the speed of the wind.

x : speed of plane
 y : speed of wind

$$\begin{aligned} 4x + 4y &= 432 \\ 8x - 8y &= 432 \end{aligned}$$

- 10) The state fair is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 3 vans and 9 buses with 297 students. High School B rented and filled 12 vans and 5 buses with 258 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.