Here are 2 word problems that are explained in your textbook on pages 429-430. Try to complete them yourself. Then go to the book and correct them.

1. **Read Problem + Write Key Information**

**Example 3: Standardized Test Practice**

The parks and recreation department in your town offers a season pass for $90.
- As a season pass holder, you pay $4 per session to use the town's tennis courts.
- Without the season pass, you pay $13 per session to use the tennis courts.

Which system of equations can be used to find the number of sessions of tennis after which the total cost y with a season pass, including the cost of the pass, is the same as the total cost without a season pass?

**Define Variable(s) - remember units:**

- \( x = \# \text{ of tennis sessions} \)
- \( y = \text{TOTAL COST IN } \$5 \)

**Define Equation(s):**

**Eq1:** $\text{Cost w/pass} \rightarrow y = 90 + 4x$

**Eq2:** $\text{Cost No Pass} \rightarrow y = 13x$

**Note:** Example 3 helps you remember to write KI, define variables, and define equations.

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2. **Solve a multi-step problem**

**RENTAL BUSINESS** A business rents in-line skates and bicycles. During one day, the business has a total of 25 rentals and collects $450 for the rentals. Find the number of pairs of skates rented and the number of bicycles rented.

**Solution**

**STEP 1:**

**ki:**

- Inline Skates $15/day
- Bikes $30/day
- 1 day Sales are 25 Rentals and Earned $450

**STEP 2:**

Write a linear system. Let x be the number of pairs of skates rented, and let y be the number of bicycles rented.

**Rental Eq:**

\[ x + y = 25 \]

**Sales Eq:**

\[ 15x + 30y = 450 \]

**STEP 3:**

Graph both equations.

**STEP 4:**

Estimate the point of intersection. The two lines appear to intersect at (20, 5).

**STEP 5:**

Check whether (20, 5) is a solution.

**Answer (in words):**

They rented 20 skates and 5 bikes.
Solving Problems With Graphs

Solve each problem by writing and graphing a system of equations that models the situation.

**Situation 1.** ROCKET RIDE.
The Rocket Coaster has 10 cars, some that hold 4 people and some that hold 8 people. There is room for 56 people altogether. How many 4-passenger cars are there? How many 8-passenger cars are there?

Let $x =$ number of 4-passenger cars
Let $y =$ number of 8-passenger cars

equation #1: $x + y = 10$  $(x:10, y:10)$
equation #2: $4x + 8y = 56$  $(x:14, y:7)$

Solution: $(6, 4)$

4 passengers and 4 8-passenger cars

**Situation 2.** FUN, FUN, FUN.
The cost of admission to Funland Park was $80 for a group of 2 adults and 5 children. The admission was $84 for another group of 4 adults and 3 children. Find the admission price for each adult and each child.

Let $x =$ price of an adult’s admission
Let $y =$ price of a child’s admission

equation #1: $2x + 5y = 80$  $(x:35, y:14)$
equation #2: $4x + 3y = 84$  $(x:21, y:28)$

Solution: $(15, 8)$

$15/A \text{dult} + 8/ \text{Kid}$

**Situation 3.** HOW ABOUT A KISS?
The number of calories in a chocolate kiss is 20 less than the number of calories in a caramel cluster. Three kisses plus four clusters together have 360 calories. How many calories are in each?

Let $x =$ calories in a chocolate kiss
Let $y =$ calories in a caramel cluster

equation #1: $x = y - 20$  $(y = x + 20)$
equation #2: $3x + 4y = 360$  $(y = -9x + 90)$

Solution: $(40, 60)$

40 CAL per choc. KISS and 60 CAL per caramel cluster

TO CHECK YOU’RE WORK... Add up the X and Y coordinates for the 3 solutions and they should sum to 133.