

VISUAL APPROACH TO PROBLEM SOLVING

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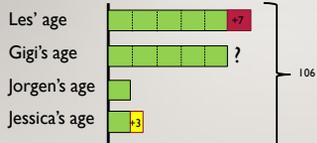
WARM-UP!



HOW OLD IS GIGI?

Gigi is 7 years younger than her husband, Les. Her son, Jorgen, is one-fifth of her age. Her daughter, Jessica, is three years older than Jorgen. The sum of all their ages together is 106. How old is Gigi?

VISUAL SOLUTION



Arithmetic Solution:

$$106 - 10 = 96$$

$$96 \div 12 = 8$$

$$8 \times 5 = 40$$

Algebraic Solution:

Let x = Jorgen's age, then we have the equation:

$$12x + 10 = 106$$

Gigi is 40 years old.

WHY MODEL DRAWING APPROACH?

- CPA approach – focusing on the visual to show number relationships and to allow students to think/process the information in the word problems.
- The model builds a bridge to abstract – variables and equations! Addressing that mysterious x that somehow just happens in algebra.
- Most word problems elementary school and in developmental math can be solved using model drawing.

STEP-BY-STEP

1. **Read** the Problem.
2. **Rewrite** the question in the problem as a complete **sentence** leaving ____ for the answer.
3. Identify the “**who**” and/or the “**what**”.
4. Draw a **UNIT BAR** to model each variable.
5. **Chunk** the problem, **adjust** your unit bars to match your information, and fill in your ?
6. Correctly **compute** and solve the problem. Be sure to show all your math work!
7. **Write** the answer in the **blank space** in your answer sentence, and make sure the answer makes **sense**.

ARITHMETIC PROBLEM

Aloha picked 9 plumeria flowers and three times as many orchids as the plumeria flowers. How many flowers did she pick altogether?

RATIO PROBLEM

Georgette has 175 coins in her big purse, some are nickels and the rest are dimes. If the ratio of nickels to dimes is 4:3, how many nickels does Georgette have? How much money does she have?



PERCENT PROBLEM

Kawika was shooting hoops at Kapahi Park. He successfully made 60% of his shots. If he made 36 baskets, how many shots did he miss?



CHALLENGE PERCENT PROBLEM

The food booths at the school carnival raised 20% more money than the game booths. The food booth collected \$1500. How much did the game booths collect?



FRACTION PROBLEM

Tati baked cookies. She gave $\frac{1}{3}$ of them to her auntie, and she put $\frac{5}{8}$ of the remaining cookies in the freezer. If she had 1 dozen left to share with her soccer team, how many cookies did she bake?



ALGEBRA - CONSECUTIVE NUMBER PROBLEM

The sum of three consecutive positive integers is 114. What are the integers?

Consecutive Number Dates
12/13/14

ALGEBRA - OAMA PROBLEM

Scotty, Liliana, and Hunter went oama fishing at Anini Beach. Scotty caught twice as much oama as Hunter. Liliana caught 20 more oama than Hunter. At the end of the day, they counted a total of 180 fish that they caught altogether. How many oama did Liliana catch?



ALGEBRA – PERIMETER PROBLEM



The perimeter of a lacrosse field is 340 yards. The length is 50 yards longer than the width. Find the dimensions of the field.

2-STEP MODEL – HOW OLD IS ROGER?

Kiana is three years older than Luka. Roger is four times as old as Kiana. Together, Luka and Kiana's total age is 29 years less than Roger's age. How old is Roger?

MAHALO FOR COMING!

A Visual Approach to Problem Solving



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