

SOLVING WORD PROBLEMS



■ In solving word problems, one must:

1. Understand the problem.
2. Let the unknown be the variable.
3. Translate mathematical statement into mathematical expression.
4. Solve for the unknown.



WORK PROBLEM



1. One pipe can fill a tank in 30 minutes, but a second pipe can fill it in 25 minutes. How long will it take if both pipes are used?

let x -total number of minutes

$$150x \left(\frac{1}{30} + \frac{1}{25} \right) = \left(\frac{1}{x} \right) 150x$$

$$5x + 6x = 150$$


$$\frac{11x}{11} = \frac{150}{11}$$

$$x = 13.63$$

or 13 minutes and 38 seconds

A tropical beach scene with palm trees in the foreground and turquoise water in the background. The text 'AGE PROBLEM' is overlaid on a white rectangular box in the center.

AGE PROBLEM



2. Three years ago, a woman was 5 times as old as her daughter. Three years from now, she will be three times as old as her daughter. How old are they now?

let x -age of the daughter

$$5x - 3 = 3x + 3$$

$$5x - 3x = 3 + 3$$

$$\frac{2x}{2} = \frac{6}{2}$$

$$x = 3$$

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


$$= 15 - 3$$

$$= 12$$

Therefore, the age of the daughter is 3 years old and the woman's age is 12 years old.

A tropical beach scene with palm trees in the foreground and turquoise water in the background. The text 'NUMBER PROBLEM' is overlaid on a white rectangular box in the center-right.

NUMBER PROBLEM



3. Find five consecutive integers such that the sum of the first three integers is equal to the sum of the last two of the integers.

let x -first integer

$$(x) + (x + 1) + (x + 2) = (x + 3) + (x + 4)$$

$x + 1$ -second integer

$$3x + 3 = 2x + 7$$

$x + 2$ -third integer

$$3x - 2x = 7 - 3$$

$x + 3$ -fourth integer

$$x = 4$$

$x + 4$ -fifth integer

$$(x + 1) = 4 + 1 = 5$$

$$(x + 2) = 4 + 2 = 6$$


$$(x + 3) = 4 + 3 = 7$$

$$(x + 4) = 4 + 4 = 8$$

Therefore, the integers are 4, 5, 6, 7, and 8, respectively.



INVESTMENT PROBLEM



4. A businessman invested part of Php 2M at 12% and the rest at 15%. If both investments gave him Php 250,000 per annum, how much was each investment?

let x -investment at 12%

$2,000,000 - x$ -investment at 15%

$$(x)(.12)(1) + (2,000,000 - x)(.15)(1) = 250,000$$

$$.12x + 300,000 - .15x = 250,000$$

$$300,000 - 250,000 = .15x - .12x$$

$$\frac{50,000}{.03} = \frac{.03x}{.03x}$$


$$x = 1,666,666.67$$

Therefore, Php 1,666,666.67 was invested at 12% while Php 333,333.33 was invested at 15%.

$$(2,000,000 - x) = 2,000,000 - 1,666,666.67 \\ = 333,333.33$$

The background of the slide is a soft-focus image of autumn leaves in various colors including red, orange, yellow, and green. A large, prominent leaf with red and orange hues is on the left side. A semi-transparent white box with a thin grey border is positioned on the right side of the slide, containing the title text.

COIN PROBLEM



5. The price of admission to a certain show was Php 250 for adults and Php 150 for children. If 500 tickets were sold for a total of Php 100,000, how many of each kind were sold?

let x -admission for adults

$500 - x$ -admission for children

$$250x + 150(500 - x) = 100,000$$

$$250x + 75,000 - 150x = 100,000$$

$$\frac{100x}{100} = \frac{25,000}{100}$$

$$x = 250$$

Therefore, the number of tickets sold to the adults is 250 tickets as well as the children.

$$\begin{aligned} 500 - x &= 500 - 250 \\ &= 250 \end{aligned}$$



THANK YOU!! 😊