

UNIT 2: EQUATIONS & INEQUALITIES

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Objectives: I can write equations to model real world problems.

SOLVING WORD PROBLEMS USING EQUATIONS

When a rate and a starting amount are given in a word problem, a similar equation can usually be written and solved.

$$\text{Total} = \text{Start Amount} + \text{Rate} \times \text{How Many}$$

Starting Amount A flat fee or starting value. This value is a constant. It never changes.

flat fee

A Rate The following are examples of a rate

- \$3 per day
 - \$2 an hour
 - 60 mph
- each every

Per is a key word that is often associated with rate.

Examples: Write an equation for each situation. Do NOT solve yet!

Sometimes the total is unknown and therefore it will be assigned the variable.

1) A plumber charges \$25 for a service call plus \$50 per hour of service. Write an equation for the cost, C , for 2 hours and 30 minutes.

total $\underbrace{\hspace{2cm}}$ 2.5 hours

$$C = 25 + (50)(2.5)$$

2) Nick collected 100 pounds of aluminum cans to recycle. He plans to collect an additional 25 pounds each week for 2 months. (assume four weeks for each month) Write the equation for the total pounds, P , of aluminum cans.

2.4 weeks

$$P = 100 + (25)(8)$$

Sometimes there is an amount to be determined and therefore it will be assigned the variable.

3) For babysitting, Nicole charges a flat fee of \$10 plus \$5 per hour. Write an equation if Nicole wants to make a total of \$50 after h hours of babysitting.

$$50 = 10 + (5)(h)$$

going back

4) Suppose that the water level of a river is 34 feet and that it is receding at a rate of 0.5 foot per day. Write an equation for the water level after d days to determine how many days will the water level be 26 feet.

$$26 = 34 - (0.5)(d)$$