

UNIT 2: EQUATIONS & INEQUALITIES

$$\text{Total} = \text{Start Amount} + (\text{Rate})(\#) \sim \text{Unit 2, Page 27} \sim$$

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

SOLVING WORD PROBLEMS USING EQUATIONS Part 2

Now that you have practiced writing equations to model situations, you will also find the solution to the problems by solving the equations.

Write an equation to model each situation and then solve to find the solution.

1) Billy plans to paint baskets. The paint costs \$14. The baskets cost \$7 each. Write an equation that finds the total cost, C , if 6 baskets were made. Determine the cost of six baskets.

Equation: $C = 14 + (7)(6)$

Work:
$$C = 14 + (7)(6)$$
$$\begin{array}{r} 14 + 42 \\ \hline 56 \end{array}$$

Solution: Cost is \$56
(Include units)

2) Felicia paid \$125 to join a tennis club. She pays an additional \$5 every time she uses one of the club's tennis courts. Write an equation to model this situation to determine n number of times Felicia played tennis if her total cost for playing tennis is \$300. How many times did she play?

Equation: $125 + (5)(n) = 300$

Work:
$$125 + 5n = 300$$
$$\begin{array}{r} -125 \\ \hline 5n = 175 \\ \hline n = 35 \end{array}$$

Solution: 35 games of tennis
(Include units)

Homework

Write an equation to model each situation and then solve to find the solution.

1) A water tank already contains 70 gallons of water when Ryan begins to fill it. Water flows into the tank at a rate of 6 gallons per minute. Write an equation to model this situation to find the volume of water in the tank, V , 30 minutes after Ryan begins filling the tank. Determine the final volume.

Equation: _____

Work: _____

2) Jose works as server in a restaurant. He earns an hourly wage of \$4 plus tips. Today he worked h hours and was paid a total of \$108. He received \$62 in tips. Write an equation to determine how many hours, h , Jose worked in today's shift.

Equation: _____

Work: _____

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3) Shakira buys a **new printer** for her office for **\$800**. For tax purposes, she declares depreciation (loss of value) of **\$100 per year**. Let d be the **declared value** of the printer. Write and solve an equation to model the value of the computer after **5 years**.

Equation: _____

Work } _____

Solution _____
(Include units)

5) A kayak rental service charges a **\$12 transportation fee** and **\$25 dollars an hour** to rent a canoe. Write and solve an equation representing the **cost, C** if you are renting the kayak for **4 hours**.

Equation: _____

Work } _____

Solution _____
(Include units)

7) Members of the soccer team are walking to raise money for a local shelter. Hanna asked her mom for a **\$20 donation** then each of her friends donated **\$2.50 each**. Write and solve an equation to determine how many of her **friends, f** , donated if she **raised a total of \$40**.

Equation: _____

Work } _____

Solution _____
(Include units)

4) Rebekah has a small business making dessert baskets. She estimates that her **fixed weekly costs** for rent and electricity are **\$250**. The ingredients for **one dessert basket cost \$3.00**. Write and solve an equation if her **total costs were \$325** to find how many **dessert baskets, d** , she made.

Equation: _____

Work } _____

Solution _____
(Include units)

6) A tree in Abram's garden was **22 cm tall** when it was **first planted**. Since then, it has grown approximately **7 cm per year**. Write an equation and solve if the tree's height is now **78 cm** to determine the number of **years, y** , since it was planted.

Equation: _____

Work } _____

Solution _____
(Include units)

8) Beaumont Bowling Lanes charges a **flat fee of \$15** plus **\$2 per game**. Write and solve an equation to calculate the **total bill, T** , if Jonea and Casey played **4 games**.

Equation: _____

Work } _____

Solution _____
(Include units)

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9) A day camp charges a \$35 fee for activities plus \$150 per week. Write and solve an equation to model this situation to find the number of weeks Lane attended camp if the total owed is \$935.

Equation: _____

Work } _____

Solution _____
 (Include units)

10) The roller rink charges an admittance fee of \$6 plus \$3 per hour. Write and solve an equation to calculate how many hours, h , Shareef skated if he paid a total of \$20.

Equation: _____

Work } _____

Solution _____
 (Include units)

11) A car rental charges a flat fee of \$40 plus \$12 per day. What is your total charge, C , if you needed the car for five days? Write an equation and solve.

Equation: _____

Work } _____

Solution _____
 (Include units)

12) Pi Pizza charges a \$5 delivery charge and \$8 per large pizza. If the total cost is \$37, write and solve an equation to determine how many pizzas were ordered, p .

Equation: _____

Work } _____

Solution _____
 (Include units)

13) Tristan is pouring sand into a cylinder at a rate of 1.5 pounds/minute. The cylinder started with 8 lbs of sand before he started. How much sand did the cylinder hold if it took Tristan 10 minutes to fill it? Write and solve an equation using s for the volume of the cylinder.

Equation: _____

Work } _____

Solution _____
 (Include units)

14) A new candle is 15 inches tall. If it burns at a rate of $1/2$ inch per hour, how long will it take for the candle to burn out? (Height would be zero.) Write and solve an equation using t for the number of hours.

Equation: _____

Work } _____

Solution _____
 (Include units)