

1-12-18

Aim: SWBAT translate and solve word problems involving equations.

HW: Finish Packet pages 8 - 9

Quiz Thursday

Do Now: What is a profit?

Homework "2-Step Equation Word Problems"

Remember you define a variable by identifying what it is you are looking for in the problem.

For Example: Find the number. Let x = the number

How much does one shirt cost? Let x = Cost of one shirt

Define a variable, write an equation and solve each word problem.

Your final answer must be a complete sentence.

- 1) Four times a number plus 75 is 23.
Find the number.

let n = the #

$$\begin{array}{r} 4n + 75 = 23 \\ -75 \quad -75 \\ \hline 4n = -52 \\ \frac{4n}{4} = \frac{-52}{4} \\ n = -13 \end{array}$$

The number is -13.

- 2) Three times a number plus -8 is -29.
Find the number.

let n = the #

$$\begin{array}{r} 3n + (-8) = -29 \\ +8 \quad +8 \\ \hline 3n = -21 \\ \frac{3n}{3} = \frac{-21}{3} \\ n = -7 \end{array}$$

The number is -7.

- 3) Six less than twice a number is -14.
Find the number.

let n = the #

$$\begin{array}{r} 2n - 6 = -14 \\ +6 \quad +6 \\ \hline 2n = -8 \\ \frac{2n}{2} = \frac{-8}{2} \\ n = -4 \end{array}$$

The number is -4.

- 4) Five less than three times a number is 25.
Find the number.

let n = the #

$$\begin{array}{r} 3n - 5 = 25 \\ +5 \quad +5 \\ \hline 3n = 30 \\ \frac{3n}{3} = \frac{30}{3} \\ n = 10 \end{array}$$

The number is 10.

CLASSWORK: Define a variable, write an equation, solve it, and write your answer in a sentence.

Pg. 137 # 21. You and your friends decide to have a car wash as a fundraiser for the school chorus. You spend \$15 on supplies and charge \$6 per car. At the end of the day, your profit is \$93. How many cars did you and your friends wash?

ARITHMETIC
 $93 + 15 = 108$
 $108 \div 6 = 18$

ALGEBRAIC
 let $x = \#$ of cars
 we must wash
 18 cars.

$$\begin{array}{r} 6x - 15 = 93 \\ +15 \quad +15 \\ \hline 6x = 108 \\ \div 6 \quad \div 6 \\ \hline x = 18 \end{array}$$

Pg. 137 #23. You make candles and sell them for \$15 each. The materials to make up to 20 candles cost \$20. How many candles must you sell to have a profit of \$85 after expenses?

ARITHMETIC
 $85 + 20 = 105$
 $105 \div 15 = 7$

ALGEBRAIC
 let $x = \#$ of candles
 You have to sell
 7 candles.

$$\begin{array}{r} 15x - 20 = 85 \\ +20 \quad +20 \\ \hline 15x = 105 \\ \div 15 \quad \div 15 \\ \hline x = 7 \end{array}$$

Pg. 137 #24: A bicycle rental shop charges \$5 per hour plus a fee of \$10 each time you rent a bike. Which equation can you use to find the number of hours you can rent a bicycle for \$45?

- A) $5h + 10 = 45$ B) $10h + 5 = 45$ C) $5 + h + 10 = 45$ D) $15h = 45$

Pg. 137 #25: You subscribe to a magazine that costs \$26 yearly. You make an initial payment of \$5 and then make three equal payments. How much is each payment?

ARITHMETIC
 $26 - 5 = 21$
 $21 \div 3 = 7$

ALGEBRAIC
 let $x =$ amount
 of each
 payment

$$\begin{array}{r} 5 + 3x = 26 \\ -5 \quad -5 \\ \hline 3x = 21 \\ \div 3 \quad \div 3 \\ \hline x = 7 \end{array}$$

Each payment will
 be \$7.

HOMEWORK: Define a variable, write an equation, solve it, and write your answer in a sentence.

Pg. 138 # 30. You need 124 plastic forks for a party. At one store you buy the last 5 boxes, and each box contains 8 forks. At another store you find boxes that contain 12 forks. How many of these boxes do you need to buy?

ARITHMETIC

ALGEBRAIC

Pg. 138 # 31. The senior class at your school made a \$300 profit at the school fair by having a dunk tank. The dunk tank cost \$135 to rent, and the senior class charged \$5 for each person to play. If one third of people who participated were adults, how many adults participated?

ARITHMETIC

ALGEBRAIC

Pg. 138 # 33. A taxi cab costs \$2 plus an additional \$1.50 for every mile. Your ride costs \$17 before the tip. How many miles did you go? Will it cost twice as much to go twice as far? Explain.

ARITHMETIC

ALGEBRAIC

Pg. 138 # 35. You have a job in which you make \$6 an hour plus tips. You made a total of \$34 yesterday. How much did you make in tips?

ARITHMETIC

ALGEBRAIC

Pg. 138 # 38. Amanda takes her car to the repair shop. The mechanic starts working on the car at 10:30 A.M., takes a 45 minute lunch break, and then continues working into the afternoon. The parts to fix the car cost \$350 and the labor costs \$80 per hour. Amanda pays \$730 in all. At what time does the mechanic finish the work?

ARITHMETIC

ALGEBRAIC