Solving Word Problems Part 3

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Mathematics 9
Equation Solving
Solving Word Problems Part 3

Last class we looked at multi-item problems. Today we will look at solving some more complex multi-items problems.

Solving Multi-Item Word Problems

1. Establish what items you are working with or need to find.
2. Write "let" statements for each item. Use a simple variable to represent the item you know the least about. Write the other items in terms of this first one.
3. Use the "let" statements to help create the equation. A table or diagram may help.
4. Solve the equation using correct algebra.
5. Remember to answer the question in a short sentence. Make sure to include the correct units where necessary.

A. Multi-Item Word Problems

1) Max is ten years older than Cindy? (Five years ago Cindy) was (half as old as Max) How old is each person now?

x = Cindy's age now
$x + 10$ = Max's age now.

	Now	5 years ago
Cindy	x	$x-5$
Max.	$x+10$	$x+10-5$

$$x - 5 = \frac{1}{2}(x + 10 - 5)$$

$$2\left[x - 5 = \frac{1}{2}x + 5 - \frac{5}{2}\right]$$

$$2x - 10 = x + 10 - 5$$

$$2x - 10 = x + 5$$

$$-x \quad\quad -x$$

$$x - 10 = 5$$

$$+10 \quad\quad +10$$

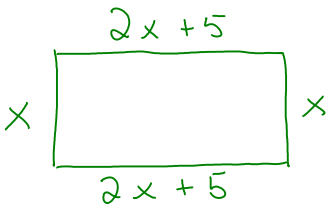
$$x = 15.$$

Cindy is 15 and Max is 25.

2) The length of a rectangle is five more than two times the width. If the perimeter of the rectangle is 34 cm. What are the length and width?

x = width

$2x + 5$ = length



$x + 2x + 5 + x + 2x + 5 = 34$

$6x + 10 = 34$

$-10 \quad -10$

$\frac{6x}{6} = \frac{24}{6}$

$x = 4$

The width is 4cm and the length is 13 cm.

Assignment: Solving Word Problems Part 3 Assignment

Name:_____

Solving Word Problems Part 3 Assignment

Solve the following. Make sure to include let statements, equation, solution and answer in sentence.

1. When 15 is added to one-quarter of a number the result is 21. What is the number?

2. Two sides of an isosceles triangle are five more than the third side. If the perimeter of the triangle is 34 cm, how long is each side?

3. One number is half of another number. One-third of the larger number plus three is equaled to the smaller number. What is the numbers?

4. Bill is twice as old as his brother Dan. In seven years, Bill will be only one and one-half times as old as Dan. How old is Bill now?

5. The length of a rectangle exceeds the width by thirteen. If the perimeter of the rectangle is 42 mm, determine the length and width.

6. Tanya is twelve years older than Leah. Three years ago, Tanya was five times as old as Leah? How old is Leah now?

7. A rectangular pool has a perimeter of 50 m. If the length of pool is nine metres more than the width, determine the dimensions.

8. Brad is twice as old as Michel. The sum of their ages three years ago was 45. How old is each now?

9. One number is four times another number. When you subtract five from each number the sum is 50. What are the numbers?

10. Find 4 consecutive numbers which total 86.

11. There are four more than twice as many dimes as nickels. If the total number of coins is forty, what is the total value of money?

12. Max is three less than twice as old as Martin now. In two years Max's age will equal Martin's age plus three?

Answers

1) Number is 24

2) The sides are 13 cm, 13 cm & 8 cm

3) Numbers are 9 & 18

4) Bill is 14 years old

5) Width is 4 mm
Length is 17 mm

6) Leah is 6 years old

7) Width is 8 m
Length is 17 m

8) Michel is 17 years old
Brad is 34 years old

9) Numbers are 12 & 48

10) Numbers are 20, 21, 22 & 23

11) Total Value is $3.40

12) Max is 6 years old
Martin is 9 years old