



## Concept: Problem Solving

Name: \_\_\_\_\_

### COMPUTER COMPONENT

**Instructions:** Select the computer program *Understanding Equations* (Neufeld)  
Follow the instructions to the Main Menu.  
Select *Problem Solving* from the Main Menu.



Work through all sections of this topic **in order**:

- *Words and Symbols*
- *The translation Machine*
- *The Trick Machine*
- *Expressions – The Language of Algebra*
- *Area of Walls*
- *Chemistry*
- *Pool Puzzler – The First Problem*
- *Perimeter Problem with Diagram*
- *Fish Problem with Diagram*

**Notice:** You will not be finishing the entire topic before stopping to complete some **OFF COMPUTER EXERCISES**.



As you work through the computer exercises, make your notes in the **NOTES** section of this page.

When you reach the end of the section *Fish Problem with Diagram* on the computer, move on to the **OFF COMPUTER EXERCISES** below.

### NOTES:

Words and Symbols (Remember that words like \_\_\_\_\_, \_\_\_\_\_ etc can  
be translated into \_\_\_\_\_ symbols to solve problems.)



**The Trick Machine** (Fill in the following chart.)

Words	Symbols	Pictures
Pick any number.		
Add 4 to it.		
Double your answer.		
Subtract 6.		
Divide by 2.		
Subtract the first number.		

**Expressions - The Language of Algebra**

For the class trip to the theater...

If:  $58 =$  number of *students* on the trip  $= s$

$26 =$  number of students from Mrs. **Jone**'s class  $= j$

$8 =$  number of students who seat in the **back** row  $= b$

$16 =$  number of students who bought **pop** during intermission  $= p$

Translate  $j = s - 32$

(a) The \_\_\_\_\_ of \_\_\_\_\_ in \_\_\_\_\_ class  
is \_\_\_\_\_ less than the \_\_\_\_\_ on the trip.

Translate  $b = p \div 2$

(b) \_\_\_\_\_ of \_\_\_\_\_ in \_\_\_\_\_ is the  
same as the \_\_\_\_\_ of \_\_\_\_\_ who  
\_\_\_\_\_.

**Pool Puzzler** (*Fill in the blanks and provide a full solution for his problem*)

The Solvers Baseball team wants to have a pool party. The fixed cost to hire a lifeguard is

\_\_\_\_\_. Each ballplayer must also pay \_\_\_\_\_ for admission.

(a) The teams has \$114.75

How many players will that pay for?

(b) But there are 19 players on the team. How much money do they need?



**OFF COMPUTER EXERCISES**

1. For each of the following statements, translate the words into symbols.

(a) Three times a number less ten. \_\_\_\_\_

(b) Eight times a number, decreased by ten is six. \_\_\_\_\_

(c) Ten is subtracted from three times a number. \_\_\_\_\_

(d) Six more than five times a number. \_\_\_\_\_

(e) Half the sum of three and a number. \_\_\_\_\_

(f) When a number is decreased by ten and the result is tripled, the answer is ten. \_\_\_\_\_

2. Recall the Solvers baseball team that was planning a pool party. The fixed cost to hire a lifeguard remains at \$75.00, but each ballplayer must now pay only \$2.50 for admission.

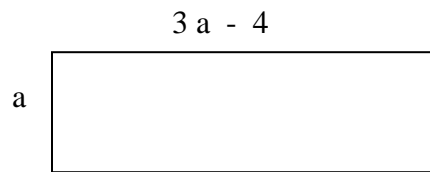
(a) *Find the equation to determine the total cost of the party.*

(b) *Using the equation from (a), calculate the cost for 15 players.*

(c) The team has 125.00. *How many players will that pay for?*

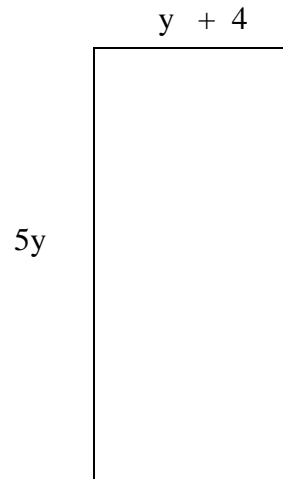
3. Calculate the dimensions of the following rectangles. (*Provide full solutions.*)

(a)



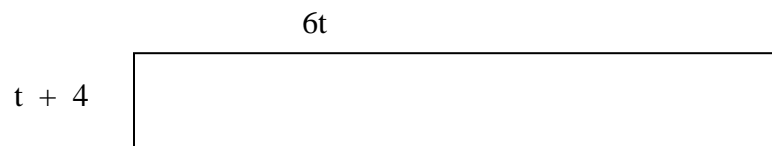
$$P = 10 \text{ units squared}$$

(b)



$$P = 20 \text{ units squared}$$

(c)



$$P = 22 \text{ units squared}$$

4. If the perimeter of a rectangle is 50 cm and its length is 1 cm more than its width, *what is the width of the rectangle?*

Let \_\_\_\_\_ represent the width of the rectangle.

Then the length can be represented by \_\_\_\_\_.

So,  $P = \text{_____ width} + \text{_____ length}$

$50 =$

5. The cost in cents of making copies on a copying machine is given by the formula  $C = 80 + 2n$ , where  $n$  is the number of copies.

(a) *What is the cost of making 150 copies?*

(b) *How many copies can be made with \$22.00?*

6. I have picked a number. I double the number and add four to the result. I end up with the number 100. *Use equations to find the number that I picked.*

7. The length of a rectangle is four times its width. If the length is decreased by 12 m and the width is increased by 12 m, the rectangle becomes a square.

(a) Draw a diagram of the rectangle, marking the lengths and widths.

(b) Use an equation to help find the length of the original rectangle.

8. You caught a big fish on your first fishing trip. Your sister said that her fish was 20 cm longer than yours. Aunt Jenn said that she caught one four times as long as yours. If the total length of the three fish was 2 m, *calculate the length of each fish.*
9. The perimeter of a triangle is 51 cm. The lengths of its sides are three consecutive whole numbers in cm. *How long is each side?*