UMATH X

Concept: Problem Solving

Name:

COMPUTER COMPONENT

Instructions: In UMATH X follow the **Content Menu** path:

Equations > **Problem Solving**

Work through all Sub Lessons of the following Lessons **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*

NOTE: You will not be finishing the entire section before stopping to complete some **OFF COMPUTER EXERCES**.

As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

When you reach the end of the lesson *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.)

Write examples for the following:

(a) Three variables

(b) Two operations

(c) Three algebraic expressions

(d) Two algebraic equations

Translation Machine

Fill in the chart.

	Statement in Words	**Mathematical Translation**
(a)	Nine less than a number	
(b)	Eight is four more than a number	
(c)	Seven less than the total of a number and two	
(d)	The sum of twice a number plus 16 is 30	

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 ÷ 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?

Analysis

Which part(s) of the four problems; Area, Chemistry, Perimeter Problem with Diagram or Fish Problem with Diagram was the most difficult. *Explain why.*

_____

_____

_____

_____

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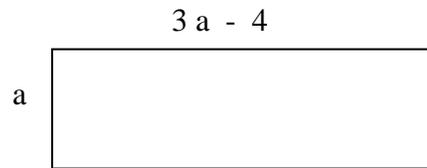
      (a) *Find the equation to determine the total cost of the party.*

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

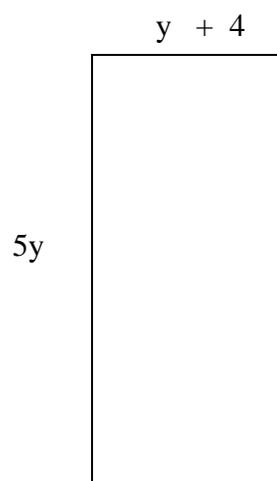   (c) The team has 125.00. *How many players will that pay for?*

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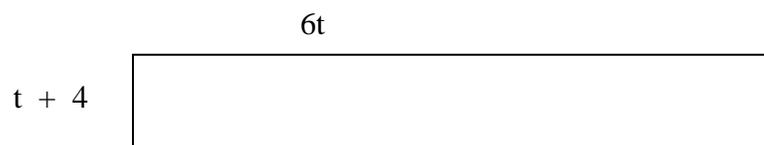
(a)

$3 a - 4$

a

P = 10 units squared

(b)

$y + 4$

5y

P = 20 units squared

(c)

6t

$t + 4$

P = 22 units squared

UMATH X

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 = _____width + _____ length

       50 =

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