

# SOLVING PROBLEMS, ALGEBRAICALLY

1. "I love to go camping," Tom said

$$\frac{\quad}{-9} \frac{\quad}{12} \frac{\quad}{10} \frac{\quad}{-5} \frac{\quad}{12} \frac{\quad}{10} \frac{\quad}{50} \frac{\quad}{2}$$

2. "I think I'm sick," Tom said

$$\frac{\quad}{90} \frac{\quad}{50} \frac{\quad}{-1} \frac{\quad}{-5} \frac{\quad}{12} \frac{\quad}{10} \frac{\quad}{50} \frac{\quad}{2}$$

3. "Light the fuse," Tom said

$$\frac{\quad}{-7} \frac{\quad}{-9} \frac{\quad}{8} \frac{\quad}{20} \frac{\quad}{-5} \frac{\quad}{3} \frac{\quad}{50} \frac{\quad}{2}$$

THESE ARE CALLED "TOM SWIFTY" JOKES. TO DECODE THE MISSING WORDS:

Solve each problem below and find your solution in the code. Each time the solution appears, write the letter of that problem above it. You will decode the missing words with your equations, invariably!

(D) Seven times a number is the same as 12 more than 3 times the number. Find the number.

(E) Six more than 5 times a number is the same as 9 less than twice the number. Find the number.

(U) Three less than 11 times a number is the same as the number decreased by 13. Find the number.

(C) One more than 3 times a number is the same as 5 times the number, decreased by 15. Find the number.

(Y) Twelve less than a number is the same as 6, decreased by 8 times the number. Find the number.

(W) Ten increased by 6 times a number is the same as 4 less than 4 times the number. Find the number.

(I) Eight times a number plus 3 times the number is the same as 9 more than 12 times the number. Find the number.

(K) The sum of two numbers is 35. Three times the larger number is the same as 4 times the smaller number. Find the larger number.  
(HINT: Let  $x$  = larger number;  
 $35 - x$  = smaller number.)

(T) The sum of two numbers is 24. Seven times the smaller number is the same as 5 times the larger number. Find the smaller number.

(F) An orange has 20 fewer calories than a banana. If 7 bananas have the same number of calories as 9 oranges, how many calories are in a banana?

(L) Keith weighs 20 kg more than Beth, while Henry weighs 30 kg less than twice as much as Beth. If Keith and Henry weigh the same, how much does Beth weigh (in kg)?

(N) Cycle Paths, Inc. makes bicycles, tricycles, and unicycles. Last week they made 88 more bicycles than unicycles, and 5 times as many tricycles as unicycles. If they made 40 more bicycles than tricycles, how many unicycles did they make?