SOLVING PROBLEMS, ALGEBRAICALLY

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

$\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$
−9 12 10 −5 12 10 50 2

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

$\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$
90 50 −1 −5 12 10 50 2

3. "Light the fuse," Tom said

$\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$ $\underline{\quad}$
−7 −9 8 20 −5 3 50 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?

OBJECTIVE 5–f: To solve word problems using equations.

What Did Mrs. Sternwhistle Say When Her Toddler Knocked Over the Coffee Pot?

Solve each problem below. Find your solution in the answer column and notice the two letters next to it. Write these letters in the two boxes at the bottom of the page that contain the number of that problem.

① The second of three numbers is 8 more than the first, and the third number is 3 less than 3 times the first. If the third number is 15 more than the second, find the three numbers.

        1st _____, 2nd _____, 3rd _____

② In the championship game, Julius scored 5 points less than Kareem, and Wilt scored 1 point more than twice as many as Kareem. If Wilt scored 20 points more than Julius, how many points were scored by each player?

        Kareem _____, Julius _____, Wilt _____

③ Model Cars, Inc. makes red cars, white cars, and blue cars. The profit on a blue car is $10 more than the profit on a white car, and the profit on a red car is $7 less than the profit on a white car. If the profit on two red cars is $2 less than the profit on one blue car, what is the profit on a blue car?

        $ _____

ST	14, 22, 37
RB	26, 22
IS	31, 62
AT	13, 21, 36
AD	80
TT	24, 20
NO	14, 9, 29
BR	29
EA	95
BL	17, 12, 37
TH	32
CA	28, 56

④ Last year Grok's mother weighed 3 times as much as Grok. Since then Grok has gained 9 kg and his mother has lost 4 kg. Now his mother weighs only twice as much as Grok. Find their weights now.

        Grok _____ kg, mother _____ kg

⑤ A hamburger costs 30¢ more than a hot dog and 20¢ less than a cheeseburger. If 3 hamburgers cost 75¢ less than 2 hot dogs and 2 cheeseburgers, how much does a hamburger cost?

        _____ ¢

⑥ Smedly has just drawn two rectangles. The length of the first rectangle is 4 cm more than the length of the second. The width of the first is 9 cm; the width of the second is 6 cm. If the area of the first rectangle is 96 cm² greater than the area of the second, find the length of each.

        1st _____ cm, 2nd _____ cm

3	3	1	1	4	4	2	2	6	6	5	5

OBJECTIVE 5–g: To solve word problems.