

PROBLEM-OF-THE-DAY: ALGEBRA 1

WEEK: February 25 to February 29

Day: Wednesday

RISD Objective: Provided a system of equations or a word problem which can be modeled by a system, students will solve the problem graphically, or by using substitution, or by using elimination.

PROBLEM #111

Thomas has some quarters and dimes worth \$12.50. He has 77 coins in all. How many quarters does he have?

MODEL SOLUTION #111

I'm going to solve by elimination. Students may use any method.

Let q = the number of quarters

Let d = the number of dimes

$$\left\{ \begin{array}{l} q + d = 77 \\ 0.25q + 0.10d = 12.50 \end{array} \right. \longrightarrow \left\{ \begin{array}{l} q + d = 77 \\ 25q + 10d = 1250 \end{array} \right.$$

$$\begin{array}{l} -10(q + d) = -10(77) \\ -10q - 10d = -770 \end{array} \begin{array}{l} \longrightarrow \\ \longrightarrow \end{array} \left\{ \begin{array}{l} -10q - 10d = -770 \\ \underline{25q + 10d = 1250} \end{array} \right.$$

$$15q = 480$$

$$q = 32$$

There are 32 quarters.