

Problem: Your school is selling tickets to a choral performance. On the first day of ticket sales the school sold 3 senior citizen tickets and 1 child ticket for a total of \$38. The school took in \$52 on the second day by selling 3 senior citizen tickets and 2 child tickets. How much would you pay if you purchased 4 senior citizen tickets (your grandparents want to go!) and 3 child tickets?

Making Sense of the Task (RESTATE)

I need to figure out how much 4 senior tickets & 3 child tickets cost. let $x = \text{cost of senior}$ & $y = \text{cost of child}$. I will use a system of equations to solve.

Representing & Solving the Task/Communicating (SHOWING ALL YOUR WORK/THINKING)

1st Day: $3x + 1y = 38$ I will use elimination.

2nd Day: $-(3x + 2y = 52)$

$$\begin{array}{r} -y = -14 \\ \hline -1 \quad -1 \end{array} \rightarrow y = 14$$

Plug in $y = 14$ & solve for x .

$$3x + 1(14) = 38$$

$$3x = 24$$

$$\frac{3x}{3} = \frac{24}{3} \rightarrow x = 8$$

Answer: $4(8) + 3(14)$
 $= 32 + 42 = 74$
 You would pay \$74 for 4 senior & 3 child tickets.

Reflecting & Evaluating (CHECK YOUR WORK!) Bonus if you can check in a DIFFERENT way!

Alternate Method: Substitution

$$3x + 1y = 38 \rightarrow y = 38 - 3x$$

Substitute $38 - 3x$ for y .

$$3x + 2(38 - 3x) = 52$$

$$3x + 76 - 6x = 52$$

$$\begin{array}{r} -3x + 76 = 52 \\ \hline -76 \quad -76 \end{array}$$

$$\begin{array}{r} -3x = -24 \\ \hline -3 \quad -3 \end{array}$$

$$x = 8$$

$$y = 38 - 3(8)$$

$$y = 38 - 24 = 14$$

Same answers as before

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