

Student Work
Paper 2: Chocolates
Problem:

Tom is buying his mother her favorite chocolate for Valentine's Day. If $\frac{1}{4}$ of a pound of the candy sells for \$1.39, what will it cost Tom to purchase his gift that weighs $2\frac{1}{2}$ pounds?

Making sense of the problem:

You know that Tom wants to buy his mom chocolate for Valentine's day. $\frac{1}{4}$ pound of this chocolate will cost him \$1.39. Your goal is to find out how much $2\frac{1}{2}$ pounds of candy will sell for. To find the answer to this I think I will set up a proportion because that is the most precise and simplest way to solve it. Using this skill is important because sometimes if you go to the candy store and want to see if you have enough money to buy candy, you need to know how to set up proportions to find the answer.

Solving the problem:

$$\begin{aligned} \frac{1}{4} &= 0.25 & \frac{0.25}{1.39} &= \frac{2.5}{x} \\ 2\frac{1}{2} &= 2.5 & & \\ & & 0.25x &= 3.475 \\ & & \frac{0.25x}{0.25} &= \frac{3.475}{0.25} \\ & & x &= 13.9 \\ & & x &= \$13.90 \end{aligned}$$

Communicating/Reasoning:

First, I converted the fractions all to decimals because decimals are easier to work with in proportions. Then, I wrote the ratio pounds of chocolate amount of money. When you do proportions, you have to make sure the same amount of a certain thing are on the same level on the proportion. →

So this way, I set up the proportion like this:

$$\frac{\text{pounds of chocolate}}{\text{amount of money}} = \frac{\text{pounds of chocolate}}{\text{unknown amount of \$}}$$

Then I plugged the numbers in

$$\frac{0.25}{1.39} = \frac{2.5}{x}$$

Then, I solved the proportion using cross multiplication and then simply solving the equation.

Reflecting and Evaluating:

As you can see above, I solved this problem simply using proportions and then cross multiplication. I think knowing how to calculate prices of things is a very important life skill. Knowing how to use proportions is too. For example if someone says, "I can do 50 pushups in 2 minutes. How many can I do in 4 minutes?" You would use proportions to set up the equation:

$$\frac{50}{2} = \frac{x}{4}$$

$$\frac{2x}{2} = \frac{200}{2}$$

$$x = 100 \text{ pushups}$$

Another way I could have solved this problem was just by using addition and subtraction. You could think, how many $\frac{1}{4}$'s are there in 2.5?

$$\begin{aligned} \underbrace{\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}} &= 1 \\ \underbrace{\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}} &= 1 > 2 \\ \underbrace{\frac{1}{4} + \frac{1}{4}} &= 0.5 > 2.5 \end{aligned}$$

It takes 10 $\frac{1}{4}$'s to make a 2.5. So, since $\frac{1}{4}$ pounds of chocolate is \$1.39, multiply that by 10. And you get \$13.90.