Lenora really wants a new bike and it costs $120. Her parents said they are willing to give him 1/3 of the cost of the bike as a gift and lend her 1/4 of the money to buy the bike and she’ll have to work to raise money for the rest of the bike.

Leanora can earn money by raking leaves and shoveling snow. Her neighbors will pay $10 to rake their leaves in the fall and $10 to shovel their sidewalks in the winter. She’ll have to pay back her parents in the next year as well.

How much money will Lenora need to earn to buy the bike? What could she do to earn that money? How will getting the loan from her parents change when she can get the bike? How much will she need to repay her parents?

**MATH STANDARDS ALIGNMENT:**
Understand a fraction \( \frac{1}{b} \) as the quantity formed by 1 part when a whole is partitioned into \( b \) equal parts; understand a fraction \( \frac{a}{b} \) as the quantity formed by \( a \) parts of size \( \frac{1}{b} \).

**Personal Finance Big Ideas:**
Debt, Scarcity, Opportunity Cost, Setting Goals

**METHOD 1: LOGICAL REASONING**
I thought I’d start by listing all the things I notice about this problem and the things I am wondering:

I notice:
- The bike Lenora wants is $120
- Her parents are going to give her 1/3 of the cost of the bike
- Her parents will lend her 1/4 of the cost of the bike
- She’ll have to pay back the money they loan her
- She’ll have to come up with the money for the rest of the bike
- She can earn money raking leaves and shoveling snow
- She earns $10 for raking a lawn
- She earns $10 for shoveling a sidewalk

I wondered:
- How many laws she’ll need to mow and how many sidewalks she’ll need to shovel to get enough money to buy the bike
- How much money her parents are giving her
- How much money her parents are lending to her
- Which she likes better, shoveling or raking
- If there will be enough leaves that she could just rake and not shovel
- How many neighbors she has
I started by figuring out some of my noticings. I thought if I could figure out how much money her parents gave to her and lent to her, I could subtract that from $120 (the cost of the bike) and I’d know how much she had to earn.

I noticed her parents gave her 1/3 of the cost of the bike. So I need to find 1/3 of $120. If I can break $120 into 3 equal parts, one of those parts will be 1/3.

$120 = $40 + $40 + $40, so 1/3 of $120 is $40.

Lenora’s parents will give her $40.

Her parents will lend her ¼ of the cost of the bike. So I need to find ¼ of $120. If I can break $120 into 4 equal parts, one of those parts will be ¼.

$120 = $30 + $30 + $30, so ¼ of $120 is $30.

Lenora’s parents will lend her $30.

Now, I can figure out what Lenora needs to earn.

Amount she needs to earn = $120 - $30 - $40
= $120 - $70
= $50

(I figured out the $50 by counting up from $70 to $120 by tens.)

So Lenora needs to earn $50. She could do that by:
• shoveling 5 sidewalks
• raking 1 lawn and shoveling 4 sidewalks.
• raking 2 lawns and shoveling 3 sidewalks.
• raking 3 lawns and shoveling 2 sidewalks.
• raking 4 lawns and shoveling 5 sidewalks.
• raking 5 lawns.

If her parents lend her the money, she can probably get the bike sooner than she could if she had to wait to shovel and rake more.

To pay back her parents she could do the following to raise $30:
• shoveling 3 sidewalks
• raking 1 lawn and shoveling 2 sidewalks.
• raking 2 lawns and shoveling 1 sidewalks.
• raking 3 lawns.