**Lower Elementary:**

*Question:* Lily has a number of 2-cup jello molds, a number of 3-cup jello molds, and 14 cups of jello. Which size mold should Lily use if she wants all of her jello desserts to be the same size without leaving any jello unused?

**Upper Elementary:**

*Question:* A frog eats half of the flies around a pond. A toad eats a third of the remaining flies. What fractional part of the flies are left at the pond?

**Middle School:**

*Question:* Evan forgets to put the stopper in the drain as he fills up his bath tub, then walks away from the bathroom. The water pours out of the faucet at a rate of 24 gallons per minute. The drain empties the tub at a rate of 6 gallons per minute. If the tub holds 60 gallons, then how long will it be before the tub overflows?

**Algebra and Up:**

*Question:* Decode the cipher to solve the problem.

VDOOB KDV WZR DSSOHV. WLPPB KDV ILYH DSSOHV. KRZ PDQB PRUH DSSOHV WKDQ VDOOB GRHV WLPPB KDYH?

**Lower Elementary:**

*Question:* Lily has a number of 2-cup jello molds, a number of 3-cup jello molds, and 14 cups of jello. Which size mold should Lily use if she wants all of her jello desserts to be the same size without leaving any jello unused?

*Answer:* 2-cup molds

*Solution:* We can count to 14 by 2s (2, 4, 6, 8, 10, 12, 14), but we can’t count to 14 by 3s (3, 6, 9, 12, 15). So, if Lily wants to use all 14 cups of jello, she’ll need to use the 2-cup molds.

**Upper Elementary:**

*Question:* A frog eats half of the flies around a pond. A toad eats a third of the remaining flies. What fractional part of the flies are left at the pond?

*Answer:* 1/3 of the flies

*Solution:* After the frog eats half of the flies, the other half of the flies are left. The toad therefore eats a third of a half of the flies, and a third of a half is a sixth. Since 1/2 + 1/6 = 2/3, that means 1/3 of the flies are left at the pond.

**Middle School:**

*Question:* Evan forgets to put the stopper in the drain as he fills up his bath tub, then walks away from the bathroom. The water pours out of the faucet at a rate of 24 gallons per minute. The drain empties the tub at a rate of 6 gallons per minute. If the tub holds 60 gallons, then how long will it be before the tub overflows?

*Answer:* 3 minutes and 20 seconds

*Solution:* The tub fills at a rate of 24 – 6 = 18 gallons per minute. Since the tub holds 60 gallons in total, it’ll take 60 ÷ 18 = 31/3 minutes—or 3 minutes and 20 seconds—to overflow.

**Algebra and Up:**

*Question:* Decode the cipher to solve the problem.

VDOOB KDV WZR DSSOHV. WLPPB KDV ILYH DSSOHV. KRZ PDQB PRUH DSSOHV WKDQ VDOOB GRHV WLPPB KDYH?

*Answer:* 3 apples

*Solution:* This is a Caeser cipher—each letter has been shifted the same number of positions. One way to solve it is to look at the first word in the last sentence, which is a question. We can reason that KRZ must be “who,” “why,” or “how” because those are the three-letter words that begin questions. If we test those words by shifting the letters, we find that the word is “how” and that shifting each letter 3 positions backward decodes the cipher. The problem decodes to “Sally has 2 apples. Timmy has 5 apples. How many more apples than Sally does Timmy have?” The answer is 3 apples.