**Lower Elementary:**

*Question:* Alexis brings 21/2 sandwiches to a picnic. Brett brings twice as many sandwiches as Alexis. How many sandwiches do Alexis and Brett have altogether?

**Upper Elementary:**

*Question:* If Cody has 20 game tokens to spend at the arcade. He spends $2.40 to get 12 more. How much did Cody’s game tokens cost altogether?

**Middle School:**

*Question:*  Darla has a number of movies in her collection; 1/4 of the movies are comedies, 1/3 are documentaries, 1/6 are horror movies, and the rest are dramas. The total number of movies in Darla’s collection is between 20 and 30. Exactly how many documentaries does she have?

**Algebra and Up:**

*Question:* A syllogism is a logic puzzle that asks you to draw a conclusion based on the logical values or truth values of a series of statements, like these:

 1) I’m thinking of a shape that is concave.

 2) All triangles are convex.

 3) A shape is convex if and only if it is not concave.

What conclusion can you draw about the shape I’m thinking of based on the statements above?

**Lower Elementary:**

*Question:* Alexis brings 21/2 sandwiches to a picnic. Brett brings twice as many sandwiches as Alexis. How many sandwiches do Alexis and Brett have altogether?

*Answer:* 71/2 sandwiches

*Solution:* If Alexis brings 21/2 sandwiches, then Brett brings 21/2 + 21/2 = 5 sandwiches. If we add up Alexis’s sandwiches and Brett’s sandwiches, we get 21/2 + 5 = 71/2 sandwiches.

**Upper Elementary:**

*Question:* If Cody has 20 game tokens to spend at the arcade. He spends $2.40 to get 12 more. How much did Cody’s game tokens cost altogether?

*Answer:* $6.40

*Solution:* Since Cody spends $2.40 to buy 12 tokens, each token costs $2.40 ÷ 12 = $0.20. Cody has 20 + 12 = 32 tokens altogether, so his game tokens cost $0.20 × 32 = $6.40.

**Middle School:**

*Question:*  Darla has a number of movies in her collection; 1/4 of the movies are comedies, 1/3 are documentaries, 1/6 are horror movies, and the rest are dramas. The total number of movies in Darla’s collection is between 20 and 30. Exactly how many documentaries does she have?

*Answer:* 8 documentaries

*Solution:* Darla can’t own half a movie—that doesn’t make any sense. So, since we know Darla’s movie collection can be divided evenly by 4, 3, and 6, we’re looking for a number between 20 and 30 that is divisible by those three numbers. The only number that fits the bill is 24. So, since 1/3 of 24 is 8, Darla must have 8 documentaries.

**Algebra and Up:**

*Question:* A syllogism is a logic puzzle that asks you to draw a conclusion based on the logical values or truth values of a series of statements, like these:

 1) I’m thinking of a shape that is concave.

 2) All triangles are convex.

 3) A shape is convex if and only if it is not concave.

What conclusion can you draw about the shape I’m thinking of based on the statements above?

*Answer:* I am not thinking of a triangle.

*Solution:* If we start with the third statement and apply it to the first, we can conclude that I am not thinking of a convex shape. If we know that I’m not thinking of a convex shape, then we can conclude that I cannot possibly thinking of a triangle because that would contradict the second statement—all triangles are convex.