**Lower Elementary:**

*Question:* Morty has 3 nickels, 4 dimes, and 5 pennies. Does Morty have enough money to buy a candy bar that costs 50¢? How much more or less does he have?

**Upper Elementary:**

*Question:* Noelle spends 40 minutes each day playing the violin. She spends 45 minutes each day playing the guitar. If Noelle doesn’t play any other musical instruments, then how much time does she spend each week ***not*** playing an instrument? Give your answer in hours and minutes.

**Middle School:**

*Question:* Olive has a recipe for peach cobbler that calls for 15 peaches and yields 10 servings. Her baking dish holds 14 servings. How many peaches should Olive buy to scale the recipe for her baking dish?

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**Algebra and Up:**

*Question:* Rae’s favorite book has 8 more than 2/3 the number of pages that Sarah’s favorite book has. Sarah’s favorite book has 12 fewer than 2 times as many pages as Tim’s favorite book. Tim’s favorite book is 32 pages shorter than Rae’s favorite book. How many pages long is Tim’s favorite book?

**Lower Elementary:**

*Question:* Morty has 3 nickels, 4 dimes, and 5 pennies. Does Morty have enough money to buy a candy bar that costs 50¢? How much more or less does he have?

*Answer:* Morty has 10¢ more than enough to buy the candy bar.

*Solution:* A nickel is worth 5¢, so Morty’s 3 nickels are worth 15¢. A dime is worth 10¢, so Morty’s 4 dimes are worth 40¢. A penny is worth 1¢, so Morty’s 5 pennies are worth 5¢. In total, Morty has 15¢ + 40¢ + 5¢ = 60¢, which is 10¢ more than enough to buy a candy bar that costs 50¢.

**Upper Elementary:**

*Question:* Noelle spends 40 minutes each day playing the violin. She spends 45 minutes each day playing the guitar. If Noelle doesn’t play any other musical instruments, then how much time does she spend each week ***not*** playing an instrument? Give your answer in hours and minutes.

*Answer:* 158 hours and 5 minutes

*Solution:* Since 40 minutes + 45 minutes = 85 minutes = 1 hour and 25 minutes, Noelle spends 24 hours – 1 hour and 25 = 22 hours and 35 minutes ***not*** playing an instrument in a day. To find out how much time that is in a full week, we can multiply the hours and minutes by 7 separately: 22 hours × 7 = 154 hours and 35 minutes × 7 = 245 minutes = 4 hours and 5 minutes. So, in total, Noelle spends 158 hours and 5 minutes each week not playing a musical instrument.

**Middle School:**

*Question:* Olive has a recipe for peach cobbler that calls for 15 peaches and yields 10 servings. Her baking dish holds 14 servings. How many peaches should Olive buy to scale the recipe for her baking dish?

*Answer:* 21 peaches

*Solution:* One way to solve this is to set up a proportion. There are 15 peaches per 10 servings, and we want to know how many go into 14 servings: 15/10 = x/14. Notice that we can reduce 15/10 to 3/2. There are 3 peaches in 2 servings of cobbler. So, our proportion could also look like this: 3/2 = x/14. Since 2 servings goes into 14 servings 7 times, we need 3 peaches, 7 times to have enough to scale up the recipe, which means Olive needs 21 peaches.

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**Algebra and Up:**

*Question:* Rae’s favorite book has 8 more than 2/3 the number of pages that Sarah’s favorite book has. Sarah’s favorite book has 12 fewer than 2 times as many pages as Tim’s favorite book. Tim’s favorite book is 32 pages shorter than Rae’s favorite book. How many pages long is Tim’s favorite book?

*Answer:* 96 pages

*Solution:* To solve this problem, we can set up a system of equations:

***R*** = 2/3***S*** + 8

***S*** = 2***T*** – 12

***T*** = ***R*** – 32

One way to solve for ***T*** is to find that ***R*** = ***T*** + 32, so ***T*** + 32 = 2/3***S*** + 8. We can then plug in the second equation and get ***T*** + 32 = 2/3(2***T*** – 12) + 8. When we solve that equation, we get ***T*** = 96. Tim’s favorite book is 96 pages long.