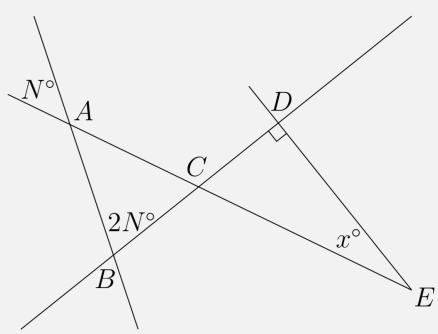
CEMC at Home
Grade 9/10 - Friday, June 19, 2020
Relay Day - Part 1

As part of the CEMC's Canadian Team Mathematics Contest, students participate in Math Relays. Just like a relay in track, you "pass the baton" from teammate to teammate in order to finish the race, but in the case of a Math Relay, the "baton" you pass is actually a number!

Read the following set of problems carefully.

Problem 1: Let A be the number of multiples of 5 between 1 to 2020 inclusive and B be the number of multiples of 20 between 1 and 2020 inclusive. What is the value of $10A \div B$?

Problem 2: *Replace N below with the number you receive.*
Four line segments intersect in points A, B, C, D, and E, as shown. The measure of $\angle CED$ is $x°$. What is the value of x?



Problem 3: *Replace N below with the number you receive.*
Armen paid \$190 to buy movie tickets for a group of N people, consisting of some adults and some children. Movie tickets cost \$5 for children and \$9 for adults. How many children's tickets did he buy?

Notice that you can answer Problem 1 without any additional information.

In order to answer Problem 2, you first need to know the mystery value of N. The value of N used in Problem 2 will be the *answer* to Problem 1. (For example, if the answer you got for Problem 1 was 5 then you would start Problem 2 by replacing N with 5 in the problem statement.)

Similarly, you need the answer to Problem 2 to answer Problem 3. The value of N in Problem 3 is the *answer* that you got in Problem 2.

Now try the relay! You can use this tool to check your answers.

Follow-up Activity: Can you come up with your own Math Relay?
What do you have to think about when making up the three problems in the relay?

In Part 1 of this resource, you were asked to complete a relay on your own. But, of course, relays are meant to be completed in teams! In a team relay, three different people are in charge of answering the problems. Player 1 answers Problem 1 and passes their answer to Player 2; Player 2 takes Player 1's answer and uses it to answer Problem 2; Player 2 passes their answer to Player 3; and so on.

In Part 2 of this resource, you will find instructions on how to run a relay game for your friends and family. We will provide a relay for you to use, but you can also come up with your own!