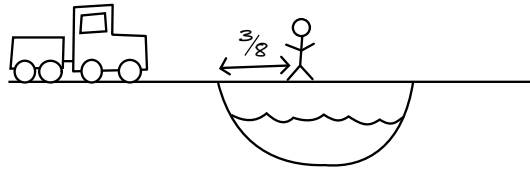# Math Circles - Grade 11/12
## October 21-27, 2020
Crocodiles!

As part of an astounding race, you foolishly try to take a shortcut across a bridge over a river full of hungry crocodiles. When you are $\frac{3}{8}$ of the way across the bridge you notice something terrifying. This bridge is a railway bridge and there is a train travelling towards you!

You definitely aren't going to jump in the river with all those crocodiles. You quickly do some calculations and you realize that if you run towards the train, you will reach the end of the bridge just as the train reaches the bridge and you will have just enough time to jump off and be safe.
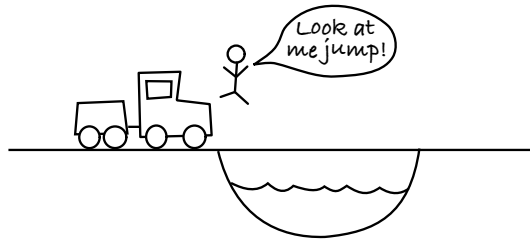
You also realize that if you run away from the train, you will reach the other end of the bridge just as the train catches up to you and again you will have just enough time to jump off and be safe.
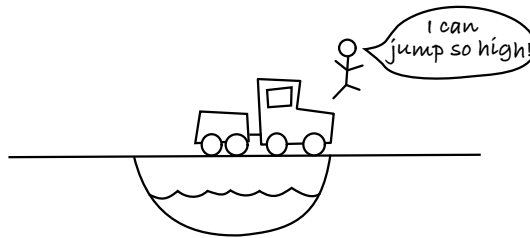
The train is travelling at 40 km/h. How fast can you run?

Here are the answers to some questions you may want to ask. Yes, you do have enough information to solve the problem. No, we don't know how far the train is from the bridge at the beginning. Yes, we will assume our speed is constant (we can instantaneously run at our top speed!).

We will present two different solutions to this problem. One solution will use algebra to solve the problem and the other will use a different type of reasoning. Can you figure out how to solve this problem in two very different ways?