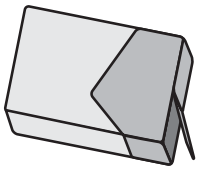
THE TIC-TAC EQUATION



When teaching rates and slopes involving fractions, a useful and fun tool is "The Tic-Tac Equation." The following equation represents the number of kisses, K, that you will receive at the end of a date after eating the number of Tic-Tac candies, t.

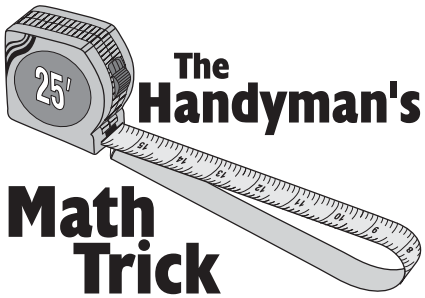
$$K = (3/2)t + 1$$

Typical questions to be asked are: how many kisses will you receive after eating a given number of Tic-Tacs, and how many candies will it take to receive a desired number of kisses? Students are usually able to answer these questions as long as the number of Tic-Tacs is an even number, or if the number of desired kisses is one more than a multiple of three. In each case, the answer comes out a whole number. But if the answer is not a whole number, then the students must deal with the issue of getting only half a kiss or eating a third of a Tic-Tac.

When asked, "How do you get only half a kiss?" the students often respond humorously with statements like, "It was only a quick pucker" or "You only get a peck on the cheek" or "You closed your eyes and missed." There is always an optimist in the group that responds, "The half is slipping in your tongue." That's when you stop and move onto the next question, "What does this equation say?"

With a small degree of explanation, the students will see that a person gets 3 kisses for every 2 Tic-Tacs that they eat, not necessarily one and a half kisses for every candy. And let's not forget the obligatory ONE kiss at the end of the date, whether you eat a Tic-Tac or not.

Revisiting this problem in different forms helps students better understand the concept of slope and y-intercept, as well as discrete functions and graphs.



During a workshop I was giving in Little Rock, Arkansas, I had the participants gathering data for the "How High" project. While the teachers were measuring distances along the floor of the lobby, the hotel handyman strolled by. He saw some of the teachers on their hands and knees with tape measures, and paused curiously. "What is this?" he asked, "Invitational carpentry?" He then pulled out his own metal tape measure and offered, "Have you seen this one?" He folded the tape measure back on itself, saying, "Pull the end of the tape measure to align with the current year. Then the age that you will turn this year will align with the year that you were born."

Demonstrating his trick, he folded the tape measure so that the tip aligned with the number 98 (It was December 1998.), and sure enough 64 (I was born in 1964.) aligned with 34 (My 34th birthday was that year.). He then moved the tip of the tape measure one inch so that it aligned with 99. "Next year you will be 35, which now aligns with 64."

The Handyman's Math Trick, as I dub it, is a great demonstration for students to see why the addition property of equality works. This trick can be represented with one of two different equations. The first one, Y - A = D, states that if you begin with the current year (Y) and subtract your age (A) you will get the year that you were born (D). The second equation, Y = D + A, states that if you start with the year that you were born and add your age that you will get the current year. Both statements are true logically. Students can also see that adding A to both sides of the first equation transforms it into the second.