

*Episode 1.3*

The teacher presents an application for what the class has been working on: finding the  $x$ -intercepts of a parabola.

1. T: How are we going to use this in real life? Mr. Jamison owns a manufacturing company that produces key rings. Last year, he collected data about the number of key rings produced per day and the corresponding profit. He then modeled the data using the function  $P(k) = 2k^2 + 12k - 10$ , where  $P$  is the profit in thousands of dollars and  $k$  is the number of the key rings in thousands.
2. T: OK, he is going to make a whole bunch of key rings. He is going to make thousands of key rings, and the number of key rings he makes if he makes ten thousand key rings, then  $k$  is equal to what? ...
3. S1: Key rings.
4. T:  $k$  is the number of key rings in thousands. So if he made ten thousand key rings, what is  $k$  equal to?
5. S2: 10.
6. T:  $k$  is equal to?
7. S1: 10.
8. T: 10, OK, and  $P$  is the profit, if he made ten thousand key rings and we plug in 10 for  $k$ , we'll find out how much money he made. And if it turns out that this number over here is 5, how much money did he make that year?
9. S1: \$5000.