For your most recent birthday you were given a total of $75 (gifts from various family members). Your parents want you to think clearly about what you do with the money and said you have two options. You can buy something you’ve been wanting (like a new scooter and helmet) or you can put it in the bank where it will earn interest at 2.5%.

Please share how you’d make your choice and the pros/cons of each choice.

**MATH STANDARDS ALIGNMENT:**
Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

**Personal Finance Big Ideas:**
Cost/Benefit Analysis; Opportunity Cost. Compound Interest

**METHOD 1: NOTICE, I WONDER™**
After reading the problem, I decided to write down everything I noticed.
• I got $75 for my birthday
• I have two choices about what I can do with the money
• I can spend the money
• I can save the money
• If I save the money it will earn interest
• If I spend the money I will have something I want right away

I then wrote down everything I wondered about the problem.
• How much interest would I earn in 1 year, 2 years, etc.?
• How much fun would I have with a scooter?
• Do I have to buy the helmet too?
• Do I have to spend all of the money, could I save some?
• How long until I have $100

First I wanted to think about how to answer some of my wonderings. Really, I am most curious about the first, how much money would I have after a year?

I know the formula for calculating interest is Interest = Principal*Rate*Time (or I= Prt)

Principal is the amount I put into the account, Rate is the percent at which it is accruing interest and Time is how long I put it in that account in years.
So my Principal is $75, Rate is 0.025, and Time is the number of years.

<table>
<thead>
<tr>
<th>Years</th>
<th>Interest (I = Prt)</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$1.88</td>
<td>$76.88</td>
</tr>
<tr>
<td>2</td>
<td>$3.75</td>
<td>$78.75</td>
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<tr>
<td>3</td>
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<td>$80.63</td>
</tr>
<tr>
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<td>$7.50</td>
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</tr>
<tr>
<td>5</td>
<td>$9.38</td>
<td>$84.38</td>
</tr>
<tr>
<td>10</td>
<td>$18.75</td>
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<td>$99.38</td>
</tr>
<tr>
<td>14</td>
<td>$26.25</td>
<td>$101.25</td>
</tr>
</tbody>
</table>

Wow, I can see that I am only earning almost $2 a year, so it would take between 13 – 15 years before I had $100. First I tried 10 years and it was not 100 yet, then I tried 15 years and it was over $100. At the same time, it’s pretty cool that I am earning money while my money just sits there – it’s better than keeping it in my wallet. One thing I noticed about this was that it looked kind of over simplified – like if I earn money in Year 1, shouldn’t I earn interest on that money too in Year 2? So I search for an interest calculator online and found the “Compound Interest Calculator” at http://www.thecalculatorsite.com/finance/calculators/compoundinterestcalculator.php and is showed me the following formula, which looked a bit more complicated than mine, and gave the following results:

**ANNUAL COMPOUND INTEREST FORMULA**

The formula for annual compound interest is $A = P \left(1 + \frac{r}{n}\right)^{nt}$:

Where:

- $A$ = the future value of the investment/loan, including interest
- $P$ = the principal investment amount (the initial deposit or loan amount)
- $r$ = the annual interest rate (decimal)
- $n$ = the number of times that interest is compounded per year
- $t$ = the number of years the money is invested or borrowed for
Looking at that I can see that the interest can “compound” more often, which means that I can earn interest on my interest not just annually, but every month. I bet I could even do it daily! And it looks like using this model, I’d have a little more in Year 5, but not a ton, so I’ll assume I’d still be at about $100 around 13 years.

On the other hand, I really want my scooter, and I think I do have to get a helmet with it or my parents will not let me ride it, so I’ll need to spend almost all of the money on the scooter and helmet, and then I’d be able to ride it with my friends and have fun with it.

I think I would probably buy my scooter and then see if my mom or neighbors would hire me to do some jobs around the house and yard to make some more money and start saving it.