Free Response Question

DIRECTIONS: Read the question carefully. Answer question thoroughly.

I. Sammie's grandmother gave him $2,000. He wants to save as much money as he can in the next 3 years so he can put a good down payment on a new car. He went to the bank and they gave him two different ways to invest his money. His first choice is to put the money in a savings account at a rate of 3% annually. His second choice is a money market account at a rate of 3% compunded semi-annually. Which would give him the best return on his money? Show both methods and explain your reasoning.

$$A = P\left(1+\frac{r}{n}\right)^{nt}$$

3% annually

$P = 2000$
$r = .03$
$n = 1$
$t = 3$

$$A = 2000\left(1+\frac{.03}{1}\right)^{3\cdot 1}$$
$$= \$2185.45$$

3% semi annually

$P = 2000$
$r = .03$
$n = 2$
$t = 3$

$$A = 2000\left(1+\frac{.03}{2}\right)^{3\cdot 2}$$
$$= 2000\left(1+\frac{.03}{2}\right)^{6}$$
$$= \$2186.89$$

He would get the best return on his money when his account balance is compounded semiannually. I know this because at the end of 3 years, he's gained $1.44 more than the account compounded annually