Chap 1, 3, Lecture Notes

Future Value of a Lump Sum Investment

Future Value = Principal * $(1 + Rate)^{Time}$

Future Value of a Series of Investments

 $(1+Rate)^{Time} - 1$

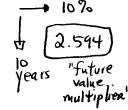
Future Value = Deposit *

Rate

Your grandaunt, Isabelle Ringing, just recently passed away and left you, her favorite grand-neice/grand-nephew, 1) \$10,000. She always told you how important it was to save money for a rainy day. Resisting the urge to blow the entire amount on durable and non-durable consumer items, you put the money into an investment that earns 10% over 10 years. How much will you have at the end of 10 years? Is this enough for a car or a down payment on a house?

\$ 10000

Single investment lump sum investment lump sum principal



10000 single investment * 2.594

Ben Dover is thirty years old. This year, he plans to start putting \$5,000 per year into a Roth IRA (What's a Roth IRA? It's 2) a retirement account.) and will continue to do so until age sixty, a total of 30 years. At 10% annually, how much will Ben

*50*00 years

have in his Roth IRA? Pyear Series of deposits Stream of investments Stream of payments "Bottom table"

How much did he invest over 30 years?

\$5000 per year

\$30 years

\$150000
invested

Eileen Forward, Ben's cousin, is 20 years old. She puts \$5,000 into a Roth IRA until age 30, only 10 years and then 3) stops making contributions. With the same 10% annual rate, how much will Eileen have at age 60? (Hint: You'll need both future value tables.) Since Ben is saving \$5,000 for 30 years while Eileen is only saving \$5,000 for 10 years, Ben is sure that he'll have much more money than Eileen. Is he right?

5000 10% vears, hold tor 30 YEAYS

series of deposits

Neil Downe, their friend, is 18 years old. He is already a Fourbucks, uh, Fivebucks, sorry, \$tarbucks addict. He stops by there at least once a day. Ben & Eileen are trying to get him to give up his habit and place the money into a Roth IRA. If he puts just \$2 per day, \$60 per month, into the same Roth IRA, how much will he have at age 68? What if he saves \$5 per day, \$150 per month?

series of deposits #1800 # 1800 per year # 1163.909 1696-50 years #2,095,036.20.

How much did he \$ 1800 Pegear 15 years

Now try some other compound rates of return. Recalculate the above problems for 5%, 8%, 12% and 13%.