Note1: If the question in the video is labeled with a number, i.e. 1,2,3, please ignore. Questions are labeled in the playlist by number and are in the same order in this pdf.

1. What is the present value of a six-payment annuity of $4,300 per year that begins 9 years from today if the annual discount rate is 9.90%?
a. $8,826
b. $13,183
c. $17,091
d. $18,783
e. $8,031

2. What is the effective annual rate on a loan with an APR of 11.40% and monthly compounding?
a. 12.01%
b. 11.40%
c. 10.40%
d. 8.01%
e. 5.70%

3. An account provides $38,800 at the end of each year for 29 years, starting one year from now. The annual return on the account is 7.30%. How much should you invest today to finance this account?
a. $462,623
b. $531,507
c. $496,395
d. $299,381
e. $570,307

4. How much will you have in 9 years, if you deposit $14,500 today and deposit $3,900 at the end of each of the next 9 years, and if the interest rate is 7.80%?
a. $28,506
b. $62,797
c. $92,163
d. $21,928
e. $76,803

5. A trust fund will provide $1,171,000 in scholarships each year forever, with the first payment to be made 6 years from today. The trust fund is expected to earn a 7.10% rate of return annually. How much should be set aside today to finance this fund?
a. $11,704,455
b. $10,204,042
c. $10,928,529
d. $16,492,958
e. $9,753,712

6. Your cousin finances a $40,600 car with a loan at 2.40% interest rate over 7 years, at which time the car will have zero value. If she wants to sell the car in 3 years, how much does she need to sell the car for to break even?
a. $12,293
b. $24,022
c. $25,480
d. $31,340
e. $15,120

7. The present value of the following cash flow stream is $19,300: $2,800 in Year 1; $1,700 in Year 2; $X in Year 3; and $1,300 in Year 4. What is the value of X, if the interest rate is 4.20%?
$15,776
$15,140
$13,500
$12,325
$13,944

8. You are planning for retirement and have calculated that you want to have saved $1,153,000 by the time you retire in 25 years. You have $19,000 now and you also know that you will receive $66,000 from your share of the family cottage in 5 years. Assume an annual return of 9.80% on your funds. How much will you need to save at the end of each of the next 25 years to reach your retirement goal?
$8,917
$5,031
$42,720
$5,554
$9,329

9. You are saving monthly to buy a Lexus Hybrid car in 3 years. Today you have $28,000 saved and your research suggests that you would need $71,000. If your investment account provides an annual interest of 6.60% compounded monthly, how much should you deposit at the end of each month?
$1,320
$529
$965
$872
$1,083

10. A savings plan makes annual deposits of $6,730 each at the end of the first 6 years, followed by 4 end-of-the-year deposits of $3,720 each. The annual rate of return is 7.60%. What is the amount that will have been saved when the final deposit is made?
$71,212
$148,539
$87,852
$82,179
$65,539

11. Your sister borrows $4,400 from you today and promises to pay you $6,500 in 8 years. What is the interest rate you are charging her?
5.00%
5.50%
4.76%
5.25%
4.54%

12. Your favourite aunt is setting up a trust fund for you that will provide $15,100 at the end of each year for 30 years, starting 5 years from today. She wants the payments to increase at a rate of 2.20% annually. The trust fund is expected to earn an annual return of 8.50%. How much should she invest today?
$134,649
$218,763
$144,235
$168,115
$182,404

13. How much will you have in 9 years, if you deposit $14,500 today and deposit $3,900 at the end of each of the next 9 years, and if the interest rate is 7.80%?
$28,506
$62,797
$92,163
$21,928
$76,803

14. If the annual interest rate is 6.80%, what is the present value of an investment that has 6 annual payments of $25,800, with the first payment starting today?
$123,740
$132,154
$165,326
$154,800
$144,944

15. Your savings plan pays you at an APR of 3.60% compounded monthly. You want to use this money to buy a car in two years and you expect the car to cost $61,930 at that time. How much will you need to save every month, starting immediately, in order to reach your goal?
$2,389
$2,597
$2,485
$2,782
$2,670

16. Jennifer bought a Ford Explorer for $8,000 with no money down. She agreed to make weekly payments of $75 for three years, beginning one week after she bought the vehicle. What is the EAR of this loan? Assume that there are fifty-two weeks in one year.
27.43%
30.97%
34.65%
23.55%
21.73%

17. David has retired and has $1.8 million saved in an account that is expected to earn 4 percent annually over the next 30 years. What annual annuity can he withdraw, beginning one year from today if there are no funds remaining at the end of year 30?
$130,768
$98,614
$150,689
$64,525
$104,094

18. You decide to take out a 7-year, $8,500 car loan that calls for semi-annual payments at an APR of 6.90%, compounded semi-annually. What is your semi-annual payment?
$775.74
$930.89
$785.85
$687.89
$607.14

19. You deposit $39,000 today and make 25 annual deposits of $1,600 starting a year from now into an investment account earning an annual return of 7.70%. How much can you withdraw from the account for each of the following 6 years (starting at year 26), so that there are no funds remaining in the account?
$24,000
$77,405
$47,999
$83,708
$53,405

20. You have been hired as a financial advisor to a newly acquired Raptors player. He has received two offers. Offer A is a $15.00 million offer of $3.00 million per year for 5 years. Offer B is a $17.00 million offer with $1.00 million annually for four years and $13.00 million in year 5. For what APR should he be indifferent between these two offers?
11.23%
9.13%
8.37%
7.61%
9.95%

21. BigBank wants to offer you 3.90% APR compounded monthly for your interest account. You want to use this account to save for your $116,300 condo down payment. How much do you need to save every month for 3 years to meet your goal?
$3,486
$3,108
$3,428
$3,050
$2,480

22. What is the principal amount owing on a mortgage after 8 years with the following characteristics: The property original value is $229,000; the downpayment is 5%; a 20-year amortization period; and the mortgage rate is 4.10% (APR compounded semi-annually and payments are monthly).
a. $158,824
b. $116,064
c. $150,883
d. $190,918
e. $248,194

23. You want to buy a condo in Toronto that costs $564,000 and have accumulated a 15.00% down payment. The remainder is financed with a 25-year mortgage over a 3-year term which you've negotiated with a local financial institution. As you are a high risk borrower the best rate you can get is an APR of 6.80% compounded semi-annually with month-end payments. How much would you owe on the mortgage after your 36th mortgage payment?
a. $454,756
b. $413,415
c. $465,241
d. $870,885
e. $459,635

24. How much can be accumulated for retirement if $8,000 is deposited annually, beginning today, and the account earns 6% interest compounded annually for 40 years?
A) $953,546
B) $1,100,345
C) $1,238,096
D) $1,312,381
E) $1,470,358

25. If I promise to pay you $3,000 twelve years from now in return for a loan of $1,000 today, what is the effective annual interest rate for this agreement?
A) 6.26%
B) 6.98%
C) 9.59%
D) 10.00%
E) 11.52%

26. Which account would be preferred by a borrower: 7% APR with monthly compounding, or 7.15% APR with semi-annual compounding?
A) 7% with monthly compounding.
B) 7.15% with semi-annual compounding.
C) The borrower would be indifferent.
D) The time period must be known in order to select the preferred account.
E) None of the above.

27. You've won a lottery and have a choice between the following options: a cash prize today of $1,000,000 or $30,000 a month over the next 3 years with payments beginning today. Based on the above what is the EAR of the monthly alternative, assuming that both options have the same economic value?
A) 5.2%
B) 5.5%
C) 6.1%
D) 6.3%
E) 8.0%

28. You purchase a home in Toronto for $650,000 and are able to come up with a down payment of 50% of the purchase price, with the rest being financed through a mortgage. You were able to negotiate a rate of 4% compounded semi-annually and you've financed this mortgage over 25 years, making monthly payments starting at the end of the first month. Based on the above information how much nominal interest are you paying over the life of the mortgage (25 years)?
A) $127,655
B) $187,871
C) $198,250
D) $287,996
E) $326,784

29. Bustin Jieber invests $500 in an account that pays 6 percent simple interest per year. How much more money could he have earned over a thirty year period if the interest had been compounded annually?
A) $1,471.75
B) $1,532.50
C) $1,621.25
D) $1,804.25
E) $2,371.75

30. Fob Rord has a 20-year, $150,000 mortgage with monthly payments (made at the end of each month) the rate is 6.8% per year (APR compounded semi-annually). What will be the mortgage principal (balance) remaining after 10 years?
A) $99,182
B) $99,497
C) $118,765
D) $119,043
E) $146,940

31. Nim Tardashian is selling locks of her hair on Zijiji. Option 1 is to pay $1,000 cash today plus four annual payments of $2,000 each with payments starting at the end of the second year. Option 2 is to pay $7,000 in cash today. If the prevailing market rate is 8% per annum which option would you pick if you really, really, really, wanted a lock of Nim's hair?
A) Option 1 as its present value is $6,624
B) Option 1 as its present value is $7,134
C) Option 2 as option 1's present value is $6,134
D) Option 2 as option 1's present value is $6,624
E) Option 2 as option 1's present value is $7,134

32. You want to invest $20,000 in a restaurant chain named “Coffee Or Cup”. A friend has agreed to lend you the funds at a 5% interest rate compounded annually. If you agree to repay the loan by making four equal annual payments beginning 3 years from today, what will be the annual payment?
A) $ 5,000
B) $ 5,640.24
C) $ 6,218.36
D) $ 6,529.27
E) $ 7,143.57

33. You’re very sad to hear that your rich uncle has recently passed away. However, in his will he has left directions for you to receive $10,000 one year from today. There is even better news, however, as this payment is to increase by 4% each year forever! What would be the value of a lump sum today that was economically equivalent to the payment stream described above? Assume that the prevailing interest rate is 6% per year.
A) $9,090.90
B) $11,111.11
C) $500,000
D) $1,000,000
E) $1,500,000

34. You have an investment account from which you plan take out $1,000 at the end of each year for the next 3 years. You intend to leave no money in your account after your last withdrawal in 3 years. How much money is in your account immediately after your 2nd withdrawal (2 years from today)? Assume that the account earns 8% per year compounded annually.
A) $925.93
B) $977.10
C) $982.29
D) $1,000
E) $2,000

35. You’ve been late in planning for your retirement but intend to set up a savings plan today that will be used to finance your retirement starting next year. You expect to withdraw $12,000 one year from today and increase your withdrawal by 1.5% per year for the next 30 years. You expect your investment to earn 6.75% per year over the 30 years. How much should you invest in the savings account today to achieve your objectives?
A) $50,346.20
B) $146,508.84
C) $178,225.23
D) $228,571.43
E) $235,890.23

36. You wish to save money to provide for your retirement. Beginning one month from now, you will begin depositing a fixed amount into a retirement savings account that will earn 12% compounded monthly. You will make 360 such deposits. Then, one year after making your final deposit, you will withdraw $100,000 annually for 25 years. The fund will continue to earn 12% compounded monthly. How much should the monthly deposits be for your retirement plan?
A) $189.58
B) $199.58
C) $214.24
D) $234.89
E) $249.38

37. Today, your cousin signed an 8-year contract with NPK Records. NPK promises to make annual payments to your cousin, with the first payment of $800,000 being made one year from today. If the payments are expected to grow by 3% each year and the discount rate is 13%, how much is the contract worth today?
A) $2,400,000
B) $3,812,000
C) $4,188,000
D) $6,400,000
E) $8,000,000

38. Northern Fine Cars will sell you a 2006 Toyota Camry for $3,000 with no money down. You agree to make weekly payments of $40 for two years, beginning one week after you buy the car. What is the EAR of this loan? Assume that there are fifty-two weeks in one year.
A) 34.43%
B) 36.55%
C) 40.94%
D) 42.34%
E) 53.01%

39. Assume that you have $100,000 in your RRSP account today. How much can be accumulated for retirement if $5,000 is deposited annually, beginning today, and the account earns 7% interest compounded annually for 30 years?
A) $744,409
B) $946,618
C) $1,233,529
D) $1,266,591
E) $1,354,095

40. Peter deposits $10,000 in a 4-year term deposit that pays 3% interest with quarterly compounding. At the end of four years, he transfers the amount to a 3-year term deposit that pays 4% interest with daily compounding. How much will he have at the end of 7 years?
A) $11,385.64
B) $11,453.26
C) $11,905.82
D) $12,706.72
E) $13,011.57

41. You have an investment account from which you plan to take out $8,000 at the end of each year for the next 3 years beginning 1 year from today. You intend to leave no money in your account after your last withdrawal in 3 years. How much money is in your account immediately after your 2nd withdrawal (2 years from today)? Assume that the account earns 5% per year compounded annually.
A) $7,619.05
B) $7,777.10
C) $7,882.29
D) $8,000
E) $8,400

42. An account paying annual compound interest was opened with $1,000 ten years ago. Today, the account balance is $1,500. If the same interest rate is offered on an account paying simple interest, how much income would be earned over the same time period?
A) $86.20
B) $92.47
C) $413.80
D) $436.29
E) $500.00

43. Find the effective annual interest rate if the APR is 8% with quarterly compounding. A) 7.77%
B) 8.00%
C) 8.24%
D) 9.00%
E) 9.16%

44. You take out a $175,000 mortgage with a 25 year amortization period, 5 year term and a 6 percent posted mortgage rate with semi-annual compounding. What is your monthly mortgage payment?
A) $87,500
B) $1,129.05
C) $1,119.71
D) $1,140.80
E) $1,500.00

45. You would like to establish a trust fund that will provide $20,000 a year forever for your heirs. The trust fund is going to be invested very conservatively so the expected rate of return is only 5 percent. How much money must you deposit today to fund this gift for your heirs, if the first payment of $20,000 will be made five years from today?
A) $210,000
B) $300,000
C) $313,400
D) $329,000
E) $400,000

46. You are considering two insurance settlement offers. The first offer includes annual payments of $15,000, $10,000, and $5,000 over the next three years, respectively. The other offer is the payment of one lump sum amount today. You are trying to decide which offer to accept given the fact that your discount rate is 5 percent. What is the minimum lump sum amount that you will accept today if you are to select the lump sum offer?
A) $26,357.33
B) $26,418.08
C) $27,545.45
D) $27,675.19
E) $27,878.78

47. You want to buy a firm for $500,000. Currently, the firm earns annual cash flows of $45,000. If the firm lasts forever, what rate of growth of the annual cash flows will be necessary for you to earn a 15 percent annual rate of return on your investment of $500,000?
A) 3.50%
B) 5.00%
C) 6.00%
D) 9.00%
E) 15.00%

48. You are arranging a $270,000 Canadian mortgage with a 25-year amortization period and a 3.99 percent quoted interest rate. You agree to make monthly mortgage payments, starting one month from today. Suppose the bank offers you the opportunity to pay your monthly payments in four equal instalments (pay one-quarter of the monthly payment every week). How long will it take you to pay off your mortgage if you make weekly payments? Assume that there are fifty-two weeks in one year.
A) 15.50 years
B) 17.85 years
C) 20.60 years
D) 21.87 years
E) 25.00 years

49. At long last you were able to afford a condo in the GTA. It cost $450,000 and you were able to come up with one third as a down payment and need to get a mortgage for the rest. A Toronto bank offers you a mortgage rate of 7% compounded semi-annually (with monthly payments) and gives you the option of a 30 year or 25 year amortization period. What is the difference in total interest paid over the life of the mortgage between the two alternatives?
a. $82,324
b. $62,800
c. $76,471
d. $23,400
e. $80,914

50. Five years ago you took out a $819,000, 30-year Canadian mortgage with an APR of 5.50% (compounded semi-annually). You refinance the outstanding balance today with a 25-year mortgage with an APR of 2.70% (compounded semi-annually). What is the reduction in your monthly payment?
a. $1,695
b. $784
c. $1,095
d. $1,153
e. $1,211

51. If you had an OSAP (student) loan outstanding, which of the following terms would you prefer. A loan charging you 10.20% APR with weekly compounding or a loan with 10.25% APR with quarterly compounding. All else being the same.
A) 10.20% APR with weekly compounding
B) 10.25% APR with quarterly compounding
C) You would be indifferent between the two options
D) You cannot answer this question without knowing how much is owing on the loan.
E) You cannot answer this question without know the term of the loans

52. You have purchased a small condo in Toronto for $175,000. You were able to save 20% towards your down payment and will finance the rest with a 25 year mortgage at 7.5% APR (compounded semi-annually). What is your monthly mortgage payment starting in one month?
A) $1,000
B) $1,024.17
C) $1,115.36
D) $1,280.87
E) $1,299.68

53. Based on the above information how much of the first months payment went towards paying down the principal on the mortgage.
A) $21.23
B) $85.35
C) $162.54
D) $454.21
E) $861.03

54. You have just won a lottery that offers you a payment of $100,000 per month forever. The first payment is in one year. Assume that the prevailing market rate of interest is 12% per year (APR compounded monthly). What would you accept as a cash prize today that would put you in the same economic position?
A) $7,899,871
B) $8,814,742
C) $8,874,492
D) $8,963,237
E) $10,000,000

55. You have been offered an investment that will pay you $1,000 in each of the next two years and then $2,000 in year three after which the payments will grow at 3% per year forever?. If your required rate of return on this investment was 7% per year then what is the most you would pay for this investment today.
A) $43,672
B) $45,480
C) $46,296
D) $52,500
E) $52,543

56. How much will you have saved in 40 years if you deposit $1,500 every year starting today. Assume your investment can earn 9% per annum.
A) 17,558
B) 506,824
C) 552,438
D) 633,812
E) 802,876

57. A deposit of $3,500 made 3 years ago is worth $5,200 today. If interest was compounded quarterly then what is the APR on this investment.
A) 12.97%
B) 13.42%
C) 14.93%
D) 15.54%
E) 16.32%

58. Dermot deposits $1,800 in a 4-year term deposit that pays 4% interest with quarterly compounding. At the end of four years, he transfers the amount to another 4-year term deposit that pays 6% interest with monthly compounding. How much will he have at the end of 8 years?
A) $2,681.55
B) $2,589.12
C) $2,333.33
D) $2,475.87
E) $2,658.46

59. Mr. Doolittle owes his friend some money. His friend gives him two options of payment.

I. Pay $3,000 today and $9,500 after 3 years.
II. Pay $1,000 after 1 year, $3,555 after 2 years, $4,444 after 3 years and $X after 4 years.

If the rate of interest is 5% per year, what is the value of X that will make Mr. Doolittle indifferent between I and II?
A) $4,013
B) $3,782
C) $3,658
D) $4,038
E) $3,878

60. Mr. Masui plans to make the following annual contributions to his investment account for the next 30 years:

Year	Amount($)
1	3,000
2	4,000
3	5,000
4	6,000
5	7,000
6	and thereafter 8,000 per year

If the contributions are made at the end of each year, and the rate of interest is 5%, how much money will he have at the end of 30 years?
A) $473,551.52
B) $478,138.26
C) $475,527.50
D) $492,642.36
E) $447,750.72

61. David and Nancy, both age 25, plan to retire in 40 years at age 65. They plan to spend $45,000 per year in retirement. They expect to live 20 years after retirement. The rate of interest is assumed to be 6% per year. They plan to spend $30,000 on their son's education in 20 years. How much must they save and invest per year in order to support their retirement and their son's education? Assume each of the annual payments occurs at the end of each year.
A) $4,100
B) $3,315
C) $3,957
D) $3,335
E) $3,922

62. Mr. Worthington, age 65, has recently retired. He expects that he will spend $55,000 in the first year post-retirement, and that because of inflation, his annual expenditure will increase at the rate of 2% per year. Since his parents and older siblings all died before the age of 90, he does not expect to live longer than 25 years. The rate of interest is expected to be 5.5% per year. How much money does he need today to support his expected post-retirement expenditure? Assume that the annual expenditure is payable at the beginning of each year.
A) $895,365
B) $944,610
C) $778,343
D) $737,766
E) $906,483

63. Tony and Mary are considering buying a home in Toronto in the near future. After paying the required down payment, they will have to borrow a mortgage of $450,000. The local bank suggests to them a 5-year mortgage, quoted at the rate of 3.2% per year with semi-annual compounding. The amortization period is 25 years. What is the monthly payment if the first payment started today?
A) $2,181
B) $2,176
C) $2,170
D) $1,504
E) $2,700

64. A bank is offering you a loan with the following options: Interest charged at 10.131% APR with weekly compounding, or interest charged at 10.250% APR with quarterly compounding. All else being the same, which of the following terms would you prefer?
A) 10.131% APR with weekly compounding
B) 10.250% APR with quarterly compounding
C) You would be indifferent between the two options
D) You cannot answer without knowing how much is owing on the loan
E) You cannot answer unless the compounding periods are the same

65. You have purchased a small condo in Toronto for $175,000. You were able to save 20% towards your down payment and will finance the rest with a 25 year mortgage at 7.5% APR (compounded semi-annually). What is your monthly mortgage payment, starting in one month?
A) $1,000.00
B) $1,024.17
C) $1,115.36
D) $1,280.87
E) $1,299.68

66. What is the present value of a seven payment annuity of $7,000 per year that begins three years from today if the discount rate is 5 percent per year?
A) $28,000.00
B) $34,989.41
C) $35,500.00
D) $36,738.88
E) $40,504.61

67. A couple will retire in 50 years; they plan to spend about $30,000 per year in retirement, which should last about 25 years. The couple also realize that in 20 years they will need to spend $60,000 on their child's university or college education. They believe that they can earn 8% interest on retirement savings. If they make annual payments into a savings plan, how much will they need to save each year? Assume the first payment is made in one year.
A) $1,520.10
B) $1,825.20
C) $1,610.40
D) $1,910.30
E) $1,720.40

68. You purchase a home for $400,000 and make a 20% down payment and finance the rest with a 25-year mortgage. The annual mortgage rate is 6.25% compounded semi-annually and you make monthly mortgage payments starting one month from today. What is the remaining principal of the mortgage after 5 years?
A) $185,780
B) $196,670
C) $245,450
D) $288,480
E) $298,567

69. A cash flow stream has a present value of $3,500 today and is based on a $500 investment today, a $600 investment at the end of Year 1, $X investment at the end of Year 2, and a $700 investment at the end of Year 3. Given that the prevailing return on similar investments was 6% compounded annually, then what is $X?
A) $2,000.31
B) $2,074.42
C) $1,954.37
D) $1,040.57
E) $1,169.18

70. Mr. Doolittle owes his friend some money. His friend gives him two options of payment:

I. Pay $3,000 today and $9,500 after 3 years.
II. Pay $1,000 after 1 year, $3,555 after 2 years, $4,444 after 3 years and $X after 4 years.

If the rate of interest is 5% per year, what is the value of X that will make Mr. Doolittle indifferent between I and II?
A) $4,013
B) $3,782
C) $3,658
D) $4,038
E) $3,878

71. Bald Inc. sells high-end gaming laptops; their top-end model can be purchased today for $7,000 cash. Alternatively Bald Inc. will finance the purchase with a deposit of $1,000 today and payments of $2,000 in years 2, 3, 4 & 5. If the prevailing rate of interest is 8% compounded annually then which is the most cost-effective way to purchase the laptop?
A) Pay cash today as the PV of the financing option is $7,134
B) Pay cash today as the PV of the financing option is $7,624
C) Take the financing as the PV of this option is $6,134
D) Take the financing as the PV of this option is $6,624
E) Take the financing as the PV of this option is $6,394

72. Assume you are retiring today and have amassed a wealth of $1,000,000 which can be invested at 6.5% annually for the next 20 years (when you expect to die!!!). How much money will you be able to withdraw each year if your intent is to have no money left when you die. Keep in mind that you want your purchasing power to keep pace with inflation which is forecasted to be 3% per year over the next 20 years.
A) Withdraw $69,714 annually starting a year from today
B) Withdraw $70,360 annually starting a year from today
C) Withdraw $90,756 annually starting a year from today
D) Withdraw $91,428 annually starting a year from today
E) Withdraw $91,428 annually starting a year from today

73. Samista Corp. acts as lender of last resort. As an example…If you borrow $3,000 today you will have to pay $125 per month for the next three years with the first payment starting today. Based on the above, what is the effective annual rate that Samista is charging you?
A) 28.56%
B) 30.50%
C) 32.61%
D) 35.15%
E) 42.24%

74. You are 40 years old today and want to retire on your 49th birthday, at which time you hope to have $1 million in your retirement account. To meet this objective you plan to invest the same amount ($X) on your 41 st , 42nd, 44th, 45th, 46th, 48th, & 49th birthdays and earn a return of 7.8%
compounded annually over this period. (no funds are invested on your 43 rd and 47 th birthdays). Based on this information what is $ X?
A) $80,751
B) $93,601
C) $103,602
D) $115,576
E) $224,566

75. Zark Muckerberg wants to set up a scholarship at his alma mater. His goal is to give students $16,000 each year for the next 100 years, with the first payment beginning one year from today. To keep up with the cost of living, the scholarship should increase by 1.25% per year over the life of the scholarship. How much should Zark invest today if the funds can earn an EAR of 6.36 %?
A) $298,676
B) $299,679
C) $301,226
D) $310,835
E) $319,787

76. You have won a local lottery that will pay you $500 every 3 months (starting 3 months from today) for the next 2 years. In the market p lace the APR is 9% with monthly compounding. All else being the same, how much is the lottery prize worth in today's dollars?
A) $3,454
B) $3,621
C) $3,703
D) $3,901
E) $4,000

77. You want to buy a condo that costs $606,400. You make a 20% down payment and finance the rest with a 25-year mortgage that is paid monthly. The mortgage has a five-year renewal term for which the annual mortgage rate is 1.90% (APR compounded semi-annually). What will be your principal still owing after 5 years?
a. $538,833
b. $373,601
c. $506,908
d. $337,939
e. $405,526

78. What will be the balance of your 30-year mortgage after 8 years if you borrowed $1,681,000 at a 3.70% posted interest rate? (Assume APR compounded semi-annually and monthly payments)
a. $1,232,733
b. $1,715,923
c. $1,002,222
d. $1,297,912
e. $1,395,059

79. You are about to purchase a 1-bedroom condo in downtown Toronto for $300,000. You make a 10% down payment and finance the rest with a 25-year mortgage at an APR of 4% compounded semi-annually. Your monthly condo costs, excluding your monthly mortgage, will amount to $500 per month. What is your total monthly cost of condo ownership?
A) $1,425.16
B) $1,914.57
C) $1,920.27
D) $1,925.16
E) $1,931.13

80. Based on the mortgage scenario in the previous question, how much interest would you have paid in the first 5 years of the mortgage?
A) $80,264.33
B) $73,331.11
C) $64,568.11
D) $50,264.33
E) $45,331.11

81. You have borrowed $21,000 to finance a large purchase. The lender requires you to pay back $522.59 per month for 48 months, starting one month from today. What is the loan's APR based on monthly compounding and what is the EAR?
A) 0.0137% & 1.781%
B) 0.360% & 4.45%
C) 0.750% & 0.93807%
D) 1.3752% & 17.81%
E) 9.00% & 9.38%

82. You walk into Bank "A" and read the following sign: "All loans have an 8% APR with monthly compounding". You walk into bank "B" and read the following sign: "All loans have an 8.3% APR with semi-annual compounding". All else being the same, if you are a student looking to borrow money to finance your education then you should go to:
A) Bank "A"
B) Bank "B"
C) The borrower would be indifferent between the two banks
D) How long you borrow the money will determine which option is better for you.
E) How much you borrow will determine which option is better for you.

83. You have become a billionaire since graduating from York and have decided to set up a scholarship in your name to support future York students. You are deciding between 2 options for the scholarship.

Option 1 - Starting a year from now $100,000 scholarship paid out each year for as long as York continues to exist.

Option 2 - Starting 3 years from now $100,000 scholarship paid out each year for as long as York continues to exist.

How much money would you have to invest in the scholarship today to fund Option 1 and Option 2 if you assume all money can earn 12% annually? You also expect the cost of education to increase by 2% every year forever and therefore want to ensure that the purchasing power of your scholarship remains the same over time.
A) $833,333 & $664,328
B) $1,000,000 & $797,194
C) $1,000,000 & $711,780
D) $833,333 & $593,150
E) $1,035,197 & $830,286

84. You have been offered the opportunity to invest $580,000 today in a growing perpetuity that will generate a payment of $35,000 at the end of the first year. What rate of growth in annual cash flows is necessary for you to earn an 8% annual rate of return on your investment?
A) 0.56%
B) 1.97%
C) 4.26%
D) 6.03%
E) 6.13%

85. You are an entrepreneur and have decided to invest $580,000 in project "X". You estimate that it will generate annual cash inflows of $60,000 and outflows of $25,000 both of which will start at the end of the first year and are expected to grow at a rate of 3% per year. Based on this information, you expect to earn a nominal annual rate of return of _____ and a real rate of return of _____. Assume that the project continues forever and annual inflation is expected to be 2% per year.
A) 2.45% & 0.44%
B) 4.76% & 2.71%
C) 6.47% & 4.38%
D) 8.67% & 6.54%
E) 9.03% & 6.89%

86. Cheryl's new job requires driving and she is financing the purchase of a new car costing $35,000. She makes a down payment of $6,000 and finances the remainder with a 7-year loan at a 5% APR with monthly compounding. What is her monthly payment if the first payment is made one month from today?
A) $494.68
B) $631.23
C) $357.43
D) $345.23
E) $409.88

87. Today, one year before your retirement, you forecast that your annual withdrawals will decline at a rate of 2% per year for 30 years; with the first withdrawal of $50,000 made one year from now. If you earn an interest rate of 2%, how much money should you have in your bank account today?
A) $ 873,567.50
B) $ 973,667.73
C) $ 985,687.91
D) $ 773,569.62
E) $ 673,876.39

88. You plan to retire 33 years from now. You expect that you will live 27 years after retiring. You want to have enough money upon reaching retirement age to withdraw $180,000 from the account at the beginning of each year you expect to live, and yet still have $2,500,000 left in the account at the time of your expected death (60 years from now). You plan to accumulate the retirement fund by making equal annual deposits at the end of each year for the next 33 years. You expect that you will be able to earn 12% per year on your deposits. However, you only expect to earn 6% per year on your investment after you retire since you will choose to place the money in less risky investments. What equal annual deposits must you make each year to reach your retirement goal?
A) $ 8,874.79
B) $ 97,110.12
C) $ 17,532.89
D) $ 50,340.47
E) $ 65,060.89

89. A four-year lease agreement requires payments of $800 at the beginning of every month starting immediately. If the quoted APR is 15%, what is the cash value of the lease?
A) $ 29,104.50
B) $ 28,745.18
C) $ 27,647.74
D) $ 20,340.47
E) $ 15,060.89

90. Suppose that you will receive annual payments of $10,000 for a period of 10 years. The first payment will be made 4 years from now. If the interest rate is 6%, what is the present value of this stream of payments?
A) $ 61,796.71
B) $ 66,640.58
C) $ 87,647.79
D) $ 51,440.47
E) $ 65,060.89

91. You have just won a lottery that offers you a payment of $100,000 per month forever. The first payment is in one year. Assume that the prevailing market rate of interest is 12% per year (APR compounded monthly). What would you accept as a cash prize today that would put you in the same economic position?
A) $7,899,871
B) $8,814,742
C) $8,874,492
D) $8,963,237
E) $10,000,000

92. David, age 25, plans to invest $3,000 real dollars per year into his investment account. If the nominal rate of interest is 10% and the rate of inflation is 3%, how much money in nominal dollars will he have at the end of 30 years? Assume that the annual contributions occur at the end of each year.
A) $663,106
B) $493,482
C) $542,830
D) $643,806
E) $218,454

93. Mr. Hope, 65, has recently retired. He will spend $45,000 in the first year, and plans to increase his annual spending at the rate of 2% per year. If the rate of interest is 6%, and he does not expect to live beyond age 85, how much money does he need today in order to support his post-retirement expenses? Assume that all annual expenses occur at the beginning of each year.
A) $603,759
B) $547,115
C) $639,984
D) $516,146
E) $900,000

94. Irene plans to save and invest annually, for the next 20 years, as follows:

Years 1-5: $3,500 per year
Years 6-7: $0 because she will take leave from work to get an MBA
Years 8-20: $5,000 per year

If she can earn 6% per year, and her contributions are made at the beginning of the years, how much money will she have at the end of 20 years?
A) $150,196
B) $163,664
C) $87,450
D) $232,759
E) $123,888

95. In 2016 you purchased a condo in Toronto for $275,000. You made a down payment of 20% and financed the rest over 25 years at 3.5% (APR semi-annually compounded). What is your monthly payment on the mortgage?
A) $1,024.18
B) $1,047.43
C) $1,101.37
D) $1,235.66
E) $1,098.39