

Answers are on last page

Mr. Kaufman: Advanced Algebra with Financial Applications Final Multiple Choice (Review)

Simple Interest:

$$I = Prt$$

Compound Interest:

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

Monthly Payment:

$$PMT = \frac{A(i)}{[1 - (1+i)^{-n}]}$$

$$i = \frac{r}{n}$$

Leasing Formulas:

Net capitalized cost = negotiated price – down payment

Money Factor: annual interest rate as a percent

$$\frac{\text{-----}}{2,400}$$

Average Monthly Finance Charge:

(net capitalized cost + residual value) * money factor

Average Monthly Depreciation:

Net capitalized capital cost – residual value

$$\frac{\text{-----}}{\text{term of the lease in months}}$$

Monthly Lease Payment:

P = Average Monthly Finance Charge + Average Monthly Depreciation

1) How many months does it take for both plans to equal? \$73.50 down and \$14.50 per month or \$185 down and \$9.90 per month. Round to the nearest whole number.

Use for 2 - 9:

You buy an Acura with a MSRP of \$41,000. You negotiate a final price of \$37,500 and make a down payment of 21 percent after sales taxes of 7.2%. This is the same information to use if you lease the car as well.

The annual interest rate for a loan or lease is 5.8% APR over 60 months.

Remember, Sales tax is 7.2% of the final price if you purchase the car. If you lease then the sales tax is added AFTER you calculate the monthly payment.

The residual value for a lease is 38% of the MSRP. This amount is also the salvage value if you sell the car for a purchase.

You BUY the Car:

- 2) What is the total cost of the car?
- 3) What is the amount of the downpayment?
- 4) What is the loan amount if you purchase the car?
- 5) Determine the monthly car payment if the loan amount is 30,000.00.
- 6) What is the interest you paid on the \$30,000.00 loan if the monthly payment is \$715.00?
- 7) What is the salvage value?
- 8) How much will you have paid for the car over the 5 year period if the loan payment was \$715 and the downpayment was \$4,500?

9) At the end of 4 years you sell the car for 38% of the MSRP. What is the net ownership cost to you for the 5 years you owned the car if the loan payment was \$715 and the downpayment was \$4,500?

10) List the benefits of purchasing a car.

11) List the benefits of leasing a car.

12) What are 3 benefits of investing in a 401K Plan at work?

For 13 - 18 think in terms of risk and timeframe investing in savings account, bonds and stocks:

13) I need money to buy a car a year from now. Which of the following should I invest in?

14) I need money for retirement in 30 years. Which of the following should I invest in?

15) Which has the least risk?

16) You would invest in a savings account if you have:

17) You would invest in stocks if you have:

18) You would invest in bonds if you have:

19) When a bond becomes due. It is said it has reached its:

20) I looked at a list of all of my investments. This means I checked my:

21) What is the main disadvantage of taking a loan from your 401K plan?

22) What is the main advantage of taking a loan from your 401K plan?

23) Bonds pay interest while common stocks pay

- 24) A _____ allows you to purchase a group of stocks:
- 25) What is the tax treatment for a ROTH IRA?
- 26) If a borrower falls behind on his/her payments it is known as:
- 27) The balance owed on a loan for a house is called:
- 28) How each loan payment is allocated between principal and interest is known as:
- 29) A long term loan for the purpose of purchasing a home is known as:
- 30) A bank, savings and loan, credit union or mortgage company that lends you money to purchase a house are known as:
- 31) The legal process by which the lender takes possession of the property when you stop making payments is called:
- 32) The interest rate stays the same for the entire term of the loan. This type of mortgage is called:
- 33) The initial mortgage interest rate is based on an index or some other measure. The mortgage states that the interest rate can be adjusted after a certain period of time IF the index used to set the initial rate has changed. The amount the interest rate can change is limited. This type of mortgage is called:
- 34) A mortgage where the loan payments will not result in the loan being paid off. The balance is due at the end of the term as one lump sum. This type of mortgage is called:
- 35) Paying a percentage of the loan amount in exchange for a lower interest rate is called:

Use for 36) – 38):

Given the following costs for bicycle locks:

13, 24, 20, 20, 18, 16, 18, 14, 16, 22, 20

36) Find the quartiles

37) Find the IQR (Interquartile Range)

38) Find the upper and lower limits.

39) Gym memberships: \$1,550 down and \$40 per month OR \$1,200 down and \$62.50 per month. After how many months will both deals cost the same amount?

40) Mark and Iesha take out a mortgage from a bank for \$515,000. The mortgage has an annual interest rate of 6.25%, but they can pay 1 point for a .125 reduction in the interest rate. They decide to pay 3 points. What is the new interest rate on their mortgage?

Use for 41 - 46: You buy a house for \$387,000 and have to put 13% down. 2 points will be paid to obtain an annual 4.75% interest rate for a 30 year loan. Each point costs 1.25% of the amount of the mortgage. Payments are made monthly.

41) Calculate the down payment.

42) Calculate the amount of the mortgage.

43) Calculate the cost of the points.

44) Calculate the monthly payment.

45) Calculate the total amount you paid for the mortgage (assume the monthly payment is \$2,125).

46) Calculate the total interest you paid for the house (assume the monthly payment is \$2,125).

47) You bought 3,366 shares of stock at \$30.77 per share plus a broker's fee of 2%. You sold the stock for \$45,322. What was the gain or loss on the stock?

48) How many shares can I purchase before both purchase plans cost the same amount: Purchasing shares with a \$30.25 transaction fee plus 1 cent per share or no transaction fee and 4 cents per share purchased. Round to the nearest tenth of a share.

49) What is the amount of the loss on the sale of the following: You purchase 1,398 shares of Company A stock for \$26.81 per share plus a 2% commission. Two years later you sell the stock for \$22.53 per share plus a 2% commission.

50) You bought x shares of stock at \$30.77 per share plus a broker's fee of 2%. The total cost of the stock was \$45,322. How many shares did you purchase? Round to the nearest tenth of a share.

(Adv Alg Final Review - 7 period
Answers

- | | |
|-----------------|-------------------------------------|
| ① 25 months | ⑱ medium timeframe |
| ② \$40,200 | ⑲ maturity |
| ③ 8,442 | ⑳ portfolio |
| ④ 31,758 | ㉑-㉒ See notes |
| ⑤ 577.20 | ㉓ dividends |
| ⑥ 12,900 | ㉔ mutual fund |
| ⑦ 15,580 | ㉕ see notes |
| ⑧ 47,400 | ㉖ default |
| ⑨ 31,820 | ㉗ principal |
| ⑩ - ㉑ See notes | ㉘ amortization |
| savings account | ㉙ mortgage |
| stocks | ㉚ lenders |
| savings account | ㉛ foreclosure |
| short timeframe | ㉜ fixed rate mortgage |
| long timeframe | ㉝ adjustable/variable rate mortgage |

(34) balloon mortgage

(46) 428,310

(35) point(s)

(47) -60321.26, loss

(36) $Q_1 = 16$ $Q_3 = 20$

(48) 1008.3 shares

$Q_2 = 18$ $Q_4 = 24$

(49) -7362.99, loss

(37) $20 - 16 = (4)$

(50) 1,443.8 shares

(38) lower = 10
upper = 26

(39) 16 months

(40) 5.875%

(41) 50,310

(42) 336,690

(43) 8417.25

(44) 1756.33

(45) 765,000