NAME: _____   Section: K– _____

PRINT this guide and bring to class. These are the items we will discuss during class time. Learn the Unit IV vocabulary and definitions by reading them EVERY DAY. **DO WRITE AND MAKE NOTES ON THIS GUIDE** .

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the simple interest. The rate is an annual rate unless otherwise noted. Assume 365 days in a year and 30 days per month. Round to the nearest cent.

    1) $1380 at 3% for 3 years

        Interest is the cost of using some other person's money for a period of time (the term). If you take out a loan, then you borrow money that other people own, so you must pay the rent on that money as well as pay back all of the loaned money to the lenders.

        Conversely, when you deposit money into an interest bearing account, you are loaning the money to the bank, credit union, or other finanacial institution, for them to use. They will pay rent on your money to you. The rate or return on your investment is lower than the rate of interest on a loan from the same institution. The difference in the rates (deposit < loan) is how the finanacial business makes money to pay ftheur employees and investors, and pay for expenses.

        To compute the simple interest (i), multiply the principal (p), in dollars, times the interest rate (r), as a decimal, times the term (t), in years (when the term is given in months, convert to years by dividing by 12 (12 months in one year).

        The formula looks like this: $i = prt$

        What is the value for p? $p = \$$

        What is the value for r? $r =$ o.

        What is the value for t? $t =$ years

        $ × 0.   ×   years = \$

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the simple interest. The rate is an annual rate unless otherwise noted. Assume 365 days in a year and 30 days per month.

    2) $3770 at 6% for 7 years

        A) $3231.43   B) $1583.40   C) $158.34   D) $89.76

    3) $1200 at 5.2% for $\frac{1}{12}$ year. how many months is $\frac{1}{12}$ of a year?}

        A) $52.00   B) $0.52   C) $62.40   D) $5.20

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the future value of the deposit if the account pays simple interest. Round to the nearest cent.

    4) $700 at 3% for 5 months

The future value (FV) of an account is the amount of money at the end of the term. It is the sum of the principal plus the interest.

$FV = p + i$

$FV = p + prt$ Using the Distributive Property, we can rewrite the formula as:

$FV = p(1 + rt)$ (Use the version that you like better since they give the same result when done correctly).

What is the value for p? $p = \$$

What is the value for r? $r = $ o.

What is the value for t? $t = $ years (remember to convert {use the fraction}: $\frac{5}{12}$)

$FV = \$700 \left(1 + 0.03 \times \frac{5}{12} \right)$

$FV = \$$

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the future value of the deposit if the account pays simple interest.

   5) $2700 at 3% for 4 years
    A) $3016   B) $3105   C) $2871   D) $3024

Use the appropriate compound interest formula to compute the future value of the investment. Two types of compound interest: 1. Periodically and 2. Continuously. (See Handout)

   6) $8000 at 5.25% compounded continuously for 6 years
    A) $8431.22   B) $13,523.67   C) $2638.01   D) $10,962.07

   7) $2900 at 7% compounded monthly for 6 months
    A) $3002.99   B) $2999.78   C) $2908.45   D) $4352.12

   8) $1000 at 8% compounded semiannually for 6 years
    A) $1586.87   B) $1480.00   C) $1265.32   D) $1601.03

   9) $600 at 2% compounded quarterly for 5 years
    A) $662.94   B) $660.00   C) $615.15   D) $662.45

Find the compound interest earned by the deposit. Round to the nearest cent.

   10) $18,000 at 1% compounded semiannually for 10 years
    A) $920.52   B) $1800.00   C) $1888.12   D) $1883.20

   11) $7396 at 4% compounded continuously for 4 years
    A) $8679.29   B) $2005.94   C) $3204.46   D) $1283.29

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem. Assume that simple interest is being calculated in each case. Round the answer to the nearest cent unless otherwise indicated.

12) Annie's cafe borrows $5300 at 5% for 140 days. Find the total amount that must be repaid after 140 days. (Use a 365 day year.)

You are asked to find the future value of a simple interest loan. The term is given in days, so convert 140 days to years = 140/365 = 28/73 (decimal form is less accurate and gives the wrong value!)

Formula to find Future Value is $p(1 + rt)$

$p = \$$ $r = 0.$ $t = 28/73$

$5300(1 + (0.05(28/73))) = 5401.64$

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem. {Be sure to asnwer the question asked!}

13) Joe is buying some kitchen equipment for his new apartment. The total cost is $1400 and he places a down payment of $140. There is add–on interest of 10%. What is the total amount he will be financing?

    A) $1260.00   B) $1540.00

    C) $1400.00   D) None of the above is correct.

The amount financed is the price minus the down payment.

14) Barb is buying a new car for $13,500. Her old car has a trade–in Value of $2500. The dealer informs her that the financing charge is 8% add–on interest. If she wishes to take 3 years to pay off the car, what will be the total amount to be repaid?

    A) $275,000.00   B) $11,880.00   C) $13,640.00   D) $16,740.00

Total repaid is the Future Value of the simple interest loan at the end of the term.
Trade–in Value is a type of down payment.

Find the finance charge on the open–end charge account. Assume interest is calculated on the unpaid balance of the account.

15) Unpaid Balance Monthly Interest Rate

    $886.80 $1\frac{4}{9}\%$

    A) $15.37   B) $11.82   C) $14.18   D) $12.81

Convert mixed number to improper fraction, multiply times the unpaid balance, then divide by 100.

Solve the problem.

16) Two competitive banks offer credit cards. Bank X charges 1.4% per month on the unpaid balance and no annual fee. Bank Y charges 1.1% per month with an annual fee of $60. Suppose your average unpaid balance is $600. Which bank's card is the better choice for you?

    A) They are the same.   B) Bank Y   C) Bank X

Find the APR (true annual interest rate), to the nearest half percent, for the following. (See TVM Solver Handout.)

17) Amount financed: $3300
Monthly payment: $153.04
Number of payments: 24

    A) 14%   B) 12%   C) 9.5%   D) 10.5%

18) Amount financed: $7200
Monthly payment: $186.09
Number of payments: 48

    A) 11%   B) 9%   C) 12%   D) 8%

19) A college student purchased a used car for $4000. He paid 20% down and then paid 18 monthly payments of $194.40. Determine the APR of the loan to the nearest one–half of a percent.

    A) 11.5%   B) 12.5%   C) 13.0%   D) 10.0%

Solve the problem.

20) The monthly payment on a(n) $83,000 loan at 12% annual interest is $874.18. How much of the first monthly payment will go toward the principal?

    A) $44.18   B) $104.90   C) $769.28   D) $830.00

Calculate simple interest on a term of 1 month (1/12). Subtract the interest from the monthly payment to find the amount going towards principal.

21) The monthly payment on a(n) $76,000 loan at 11% annual interest is $863.81. How much of the first monthly payment will go toward the principal?

    A) $696.67   B) $768.79   C) $167.14   D) $95.02

Solve the problem. Use the TVM solver, or if necessary, use the table of monthly payments below. Round your answer to the nearest cent.

Monthly Payments to Repay Principal and Interest on a $1000 Mortgage

Term of Mortgage (Years)

Annual Rate (r)	5	10	15	20	25	30	40
5.0%	$18.87123	$10.60655	$7.90794	$6.59956	$5.84590	$5.36822	$4.82197
5.5%	19.10116	10.85263	8.17083	6.87887	6.14087	5.67789	5.15770
6.0%	19.33280	11.10205	8.43857	7.16430	6.44301	5.99551	5.50214
6.5%	19.56615	11.35480	8.71107	7.45573	6.75207	6.32068	5.85457
7.0%	19.80120	11.61085	8.98828	7.75299	7.06779	6.65302	6.21431
7.5%	20.03795	11.87018	9.27012	8.05593	7.38991	6.99215	6.58071
8.0%	20.27639	12.13276	9.55652	8.36440	7.71816	7.33765	6.95312
8.5%	20.51653	12.39857	9.84740	8.67823	8.05227	7.68913	7.33094
9.0%	20.75836	12.66758	10.14267	8.99726	8.39196	8.04623	7.71361
9.5%	21.00186	12.93976	10.44225	9.32131	8.73697	8.40854	8.10062
10.0%	21.24704	13.21507	10.74605	9.65022	9.08701	8.77572	8.49146
10.5%	21.49390	13.49350	11.05399	9.98380	9.44182	9.14739	8.88570
11.0%	21.74242	13.77500	11.36597	10.32188	9.80113	9.52323	9.28294

22) Find the monthly payment needed to amortize principal and interest (PI) for the following fixed–rate mortgage.
Mortgage amount: $79,000
Term of mortgage: 15 years {Remember to convert to the **N**umber of monthly payments by multiplying the number of years times 12. Example: 15 years X 12 months = 180 payments.
Interest rate: 5.5%
   A) $624.73   B) $645.50   C) $666.65   D) $543.43

23) Find the monthly payment needed to amortize principal and interest (PI) for the following fixed–rate mortgage.
Mortgage amount: $77,000
Term of mortgage: 15 years
Interest rate: 11.5%
   A) $924.13   B) $899.51   C) $821.15   D) $875.18

24) Find the monthly payment needed to amortize principal, taxes, insurance, and interest (PITI) for the following fixed–rate mortgage.
Mortgage amount: $174,400
Term of mortgage: 30 years
Interest rate: 8.5%
Annual t:axes: $1500
Annual insurance: $750

    A) $712.86   B) $1595.88   C) $1528.48   D) $1779.30

First, calculate the monthly payment for principal and interest.
Next, add the annual taxes and insurance, then divide by 12 (find the <u>escrow</u> amount for one month).
Add the escrow amount to the monthly principal and interest payment to find the total monthly payment.

25) Find the total monthly payment, including taxes and insurance (PITI), on the following fixed–rate mortgage.
Amount of loan: $82,000
Interest rate: 11.0%
Term of loan: 20 years
Annual taxes: $1356
Annual insurance: $348

    A) $846.39   B) $1015.30   C) $967.74   D) $988.39

26) Find the total monthly payment, including taxes and insurance (PITI), on the following fixed–rate mortgage.
Amount of loan: $104,250
Interest rate: 10.0%
Term of loan: 25 years
Annual taxes: $3016
Annual insurance: $490

    A) $1287.75   B) $1239.49   C) $947.32   D) $1257.52

27) Find the total monthly payment, including taxes and insurance (PITI), on the following fixed–rate mortgage.
Amount of loan: $398,000
Interest rate: 6.0%
Term of loan: 30 years
Annual taxes: $4354
Annual insurance: $1289

    A) $2856.46   B) $2386.21   C) $2660.10   D) $2985.88

1) $124.20
   ID: MI14M 13.1.1–4+

2) B
   ID: MI12M 13.1.1–4+

3) D
   ID: MI12M 13.1.1–5+

4) $708.75
   ID: MI14M 13.1.2–2+

5) D
   ID: MI12M 13.1.2–1+

6) D
   ID: MI12M 13.1.4–10+

7) A
   ID: MI12M 13.1.4–11+

8) D
   ID: MI12M 13.1.4–2+

9) A
   ID: MI12M 13.1.4–3+

10) C
    ID: MI12M 13.1.5–2+

11) D
    ID: MI12M 13.1.5–7+

12) $5401.64
    ID: MI14M 13.1.3–1+

13) A
    ID: MI12M 13.2.1–3+

14) C
    ID: MI12M 13.2.1–4+

15) D
    ID: MI12M 13.2.2–1+

16) C
    ID: MI12M 13.2.5–2+

17) D
    ID: MI12M 13.3.2–1+

18) A
    ID: MI12M 13.3.2–2+

19) A
    ID: MI12M 13.3.2–5+

20) A
    ID: MI12M 13.4.2–1+

21) C
    ID: MI12M 13.4.2–2+

22) B
    ID: MI14M 13.4.1–1+

23) B
    ID: MI12M 13.4.1–1+

24) C
    ID: MI12M 13.4.1–2+

25) D
    ID: MI14M 13.4.1–8+

26) B
    ID: MI14M 13.4.1–9+

27) A
    ID: MI14M 13.4.1–10+