TEST POLICIES (REMINDEERS)

If you know that you will be absent on the day of a test, it may be possible to make arrangements with me to take the test on an earlier day. This alternative is not automatic!! Each case will be considered individually. You should notify me as soon as possible regarding planned absences. There are no make-up exams provided for unexpected absences. If you miss an exam for an unexpected absence, the average that you earn on the final will make-up the score for your missed exam. There are no exceptions – do not ask!!

HONOR POLICY: You must observe the following rules during any in class exam or quiz.

1. Be prepared to move to a designated seat if requested. I will request that the class sit every other row if possible.
2. You are not to leave the room without permission.
3. You must not look anywhere in the room other than at your own test paper.
4. You may not use or even touch a cell phone. Remember your cell phone is to be silenced in class.
5. You may not speak to another student.
6. You may not share materials with another student.
7. Have all your materials ready. You may not retrieve items from your backpack etc.

Failure to observe all of the policies will result in a zero score for the test or quiz.

When you complete the test, hand it to me personally. You may leave the room at this time. The only questions permitted during an exam are in reference to a misprint, omission, or illegible text. You are responsible for being prepared for the exam. Do not ask me how to do the problem, ask for a hint about how to do the problem, or ask whether or not your answer is correct. Please do not share (at this time) your misery of being absent for a particular topic, that you forgot how to do the problem, or that you do not have enough time. You will not have the time to figure out problems on exam day. You are to come prepared, polished, and ready to complete the exam. You must turn in your test paper when time is called. I will give a five minute warning before collecting exams. If you do not hand in your paper at that time, I will not accept it later. It is your responsibility to keep track of time during the exam.

TEST REVIEW PROBLEMS

This test review will give you an idea of the difficulty level of the problems that will be on the exam. This test review contains a sample problem from every topic that will be covered on the exam. Test problems will be similar, but not identical. If you have done all the homework, asked for help as needed, and reviewed the material diligently, you should now find this review easy to moderate to complete. If you struggle with the review, we will go over some solutions in class. However, please be aware that your struggle is an indication that you should go back to the homework sets and work additional problems similar to those on this review in order to perform well on the exam.

The problems begin on the next page. The answers are included at the end of the review.

** Also review group work exercises, quizzes, and class examples. **
1. How much will $15,400 be worth if it is invested at a simple interest rate of 16% for 5 years.

2. Find the pay-off amount of a loan of $540 with simple interest of 12% for 3 months.

Finding initial deposit amount

3. What principle must be deposited to accumulate $1554.30 at 6% interest, compounded quarterly for 3 years?

\[
\begin{array}{|c|}
\hline
N = \\
I\% = \\
PV = \\
PMT = \\
FV = \\
P/Y = \\
\hline
\end{array}
\]

Answer: 

4. Barbara knows that she will need to buy a new car in 3 years. The car will cost $15,000 by then. How much should she invest now at 6%, compounded quarterly, so that she will have enough to buy a new car?

\[
\begin{array}{|c|}
\hline
N = \\
I\% = \\
PV = \\
PMT = \\
FV = \\
P/Y = \\
\hline
\end{array}
\]

Answer: 

5. Southwest Dry Cleaners believes that it will need new equipment in 10 years. The equipment will cost $26,000. What lump sum should be invested today at 6% compounded semiannually, to yield $26,000?

\[
\begin{array}{|c|}
\hline
N = \\
I\% = \\
PV = \\
PMT = \\
FV = \\
P/Y = \\
\hline
\end{array}
\]

Answer: 

Finding length of investment or loan

6. How many years will be required to turn $24,000 into $30,402.01 if the interest rate is 12% compounded quarterly?

\[
\begin{align*}
N &= \\
I\% &= \\
PV &= \\
PMT &= \\
FV &= \\
P/Y &= 
\end{align*}
\]

Answer: 

7. Anne purchased a bond for a museum valued at $8000 for $2400. If the bond pays 5.5% annual interest compounded monthly, how long must she hold it until it reaches its full face value?

\[
\begin{align*}
N &= \\
I\% &= \\
PV &= \\
PMT &= \\
FV &= \\
P/Y &= 
\end{align*}
\]

Answer: 

Finding interest rate

8. What interest rate compounded monthly is needed to have a $1,000 investment grow to $3,000 in five years?

\[
\begin{align*}
N &= \\
I\% &= \\
PV &= \\
PMT &= \\
FV &= \\
P/Y &= 
\end{align*}
\]

Answer: 

9. If Jay bought a lot for $8,000 and sold it 10 years later for $24,000, what was her percentage rate of return on this investment if it was compounded annually?

\[
\begin{align*}
N &= \\
I\% &= \\
PV &= \\
PMT &= \\
FV &= \\
P/Y &= 
\end{align*}
\]

Answer: ________________________________

**Finding final investment accumulation**

10. If you deposit $350 a month into your child’s college fund for 18 years at 5.7% compounded monthly, how much will you accumulate?

\[
\begin{align*}
N &= \\
I\% &= \\
PV &= \\
PMT &= \\
FV &= \\
P/Y &= 
\end{align*}
\]

Answer: ________________________________

11. If $3500 is invested at the rate of 8%, compounded quarterly, what will be the value of the investment 17 years from now, assuming no withdrawals?

\[
\begin{align*}
N &= \\
I\% &= \\
PV &= \\
PMT &= \\
FV &= \\
P/Y &= 
\end{align*}
\]

Answer: ________________________________

12. $765.13 is deposited at the end of each month for 2 years in an account paying 12% interest compounded monthly. Find the amount of the account.

\[
\begin{align*}
N &= \\
I\% &= \\
PV &= \\
PMT &= \\
FV &= \\
P/Y &= 
\end{align*}
\]

Answer: ________________________________
13. How much will $20,000 be worth if it is invested at 9% interest, compounded semi-annually for 14 years.

\[
\begin{array}{l}
N = \\
I\% = \\
PV = \\
PMT = \\
FV = \\
P/Y = \\
\end{array}
\]

Answer: ________________________________

Finding payment value (investment or loan payment)

14. Larry wants to start an IRA that will have $660,000 in it when he retires in 29 years. How much should he invest semiannually in his IRA to do this if the interest is 13% compounded semiannually? How much total interest will be earned through this investment?

\[
\begin{array}{l}
N = \\
I\% = \\
PV = \\
PMT = \\
FV = \\
P/Y = \\
\end{array}
\]

Answer: ________________________________

15. How much will you need to save each month (for 30 years) to accumulate $2,000,000 in your retirement account if you can earn 8% compounded monthly? How much is the balance at the beginning of the 29th year? How much interest will be earned in the last year of this investment?

\[
\begin{array}{l}
N = \\
I\% = \\
PV = \\
PMT = \\
FV = \\
P/Y = \\
\end{array}
\]

Answer: ________________________________
16. In order to purchase a home, a family borrows $60,000 at 13% compounded monthly for 30 years. What is their monthly payment? What is the unpaid balance after one year of payments have been made? How much in interest is paid during the first year of this mortgage? What is the unpaid balance after 29 years of payments have been made? How much interest will the family pay in the last year of the mortgage?

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Answer: 

17. You purchase a home set up a 30-year mortgage $320,000 with a loan company that charges 6.5% compounded monthly. What will your monthly mortgage payments be? How much in interest will you pay over this mortgage?

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<tr>
<td>P/Y =</td>
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</tbody>
</table>

Answer: 

SOLUTIONS:
1. A = P(1 + rt) = 15400(1 + .16*5) = $27,720
2. A = P(1 + rt) = 540(1 + .12(3/12)) = $556.20
3. $1300.00
4. $12,545.81
   
   N=12
   I%=6
   • FV=-1299.99697
   PMT=0
   FV=1554.3
   P/Y=4
   C/Y=4
   PMT:BEGIN

   N=12
   I%=6
   • FV=-12545.81133
   PMT=0
   FV=15000
   P/Y=4
   C/Y=4
   PMT:BEGIN

5. $14,395.57
6. 8 quarters = 2 years
   
   N=20
   I%=6
   • FV=-14395.56961
   PMT=0
   FV=26000
   P/Y=2
   C/Y=2
   PMT:BEGIN

   N=7.999474822
   I%=12
   • FV=-24000
   PMT=0
   FV=30402.01
   P/Y=4
   C/Y=4
   PMT:BEGIN

7. 263.3 months = 21.94 years
8. 22.17%
   
   N=263.286531
   I%=5.5
   • FV=-2400
   PMT=0
   FV=8000
   P/Y=12
   C/Y=12
   PMT:BEGIN

   N=60
   I%=22.17463732
   • FV=-1000
   PMT=0
   FV=3000
   P/Y=12
   C/Y=12
   PMT:BEGIN

9. 11.6123%
10. $131,387.45
    
    N=10
    I%=11.6123174
    • FV=-8000
    PMT=8
    FV=24000
    P/Y=1
    C/Y=1
    PMT:BEGIN

    N=216
    I%=5.7
    • FV=-350
    PMT=0
    FV=131387.4487
    P/Y=12
    C/Y=12
    PMT:BEGIN

11. $13,454.88
12. $20,638.21
    
    N=68
    I%=8
    • FV=-3500
    PMT=0
    FV=13454.87676
    P/Y=4
    C/Y=4
    PMT:BEGIN

    N=24
    I%=12
    • FV=-765.13
    PMT=0
    FV=20638.20716
    P/Y=12
    C/Y=12
    PMT:BEGIN
13. $68,594.00

\[ \begin{align*}
N &= 28 \\
I &= 9 \\
PV &= -20000 \\
PMT &= 8 \\
FV &= 68593.9985 \\
P/Y &= 2 \\
C/Y &= 2 \\
PMT: \text{BEGIN} \\
\end{align*} \]

Total paid in \(58 \times 1141.79 = 66,223.82\).
Total amount in account less amount paid in: \(660,000 - 66,223.82 = 593,776.18\).

14. $1141.79

\[ \begin{align*}
N &= 58 \\
I &= 13 \\
PV &= 0 \\
PMT &= -1141.7939... \\
FV &= 660000 \\
P/Y &= 2 \\
C/Y &= 2 \\
PMT: \text{BEGIN} \\
\end{align*} \]

Total paid in \(58 \times 1141.79 = 66,223.82\).
Total amount in account less amount paid in: \(660,000 - 66,223.82 = 593,776.18\).

15. $1,341.96

Only \(360 - 12 = 348\) have been made in the first 29 years.

\[ \begin{align*}
N &= 360 \\
I &= 8 \\
PV &= 0 \\
PMT &= -1341.9581... \\
FV &= 2000000 \\
P/Y &= 12 \\
C/Y &= 12 \\
PMT: \text{BEGIN} \\
\end{align*} \]

Total amount in account less balance at the beginning of the last year less amount paid into account in the last year is the total interest earned in the last year.
\[2,000,000 - 1,831,296.05 - 12(1341.96) = 152,600.43\]

16. $663.72

In 1 year only 12 payments are made. The bal. = $59,825.19

\[ \begin{align*}
N &= 360 \\
I &= 13 \\
PV &= 600000 \\
PMT &= -663.71971... \\
FV &= 0 \\
P/Y &= 12 \\
C/Y &= 12 \\
PMT: \text{BEGIN} \\
\end{align*} \]

The total paid to the principle of the loan in the first year is \(60,000 - 59,825.19 = 174.81\).
The total in payments made is \(12 \times 663.72 = 7964.64\).
The difference: \(7964.64 - 174.81 = 7789.83\) is the interest paid in the first year.
16 continues. In 29 years, 348 payments have been made. The balance is $7431.03

\[
\begin{align*}
N &= 348 \\
I% &= 13 \\
PV &= 60000 \\
PMT &= -663.72 \\
FV &= -7431.03 \\
P/Y &= 12 \\
C/Y &= 12 \\
PMT: &\text{ END BEG}\NLINE \\
\end{align*}
\]

In the last year of the loan, the total paid is 12*663.72 = $7964.64. (This is the same amount paid every year. Their loan agreement is $663.72 a month.) The total amount of interest is the total paid 7964.64 less principle paid 7431.03 = $533.61.

17. $2022.62

\[
\begin{align*}
N &= 360 \\
I% &= 6.5 \\
PV &= 320000 \\
PMT &= -2022.62 \\
FV &= 0 \\
P/Y &= 12 \\
C/Y &= 12 \\
PMT: &\text{ END BEG}\NLINE \\
\end{align*}
\]

360 payments of 2022.62 will be made. Subtract from the total payments, the total owed, that will give the total dollar amount in interest over the entire loan.

360(2022.62) – 320,000 = $408,143.20