Announcements

- Exam #2 will be on Friday, July 12.
- Exam is over material from Chapters 7-9.
- An extra lab session will be offered from 2:30
 5:00 on Thursday, July 11 in Faner 1032.
- A practice exam (no credit) is available in My Labs Plus. Work on this after you finish the homework and practice quizzes which do count for credit.

Formulas provided on exam:

A = P(1 + rt)

 $A = P(1+i)^{nt}$ $A = d\left[\frac{(1+i)^{nt} - 1}{i}\right]$

Amortization Formula

P = principal (amount borrowed)i = r/n = interest rate per compounding periodnt = number of installments

d = payment made at end of each period

$$P(1+i)^{nt} = d\left[\frac{(1+i)^{nt}-1}{i}\right]$$

This formula will not be provided separately. Combine the compound interest and savings formulas to get it. 1. You have \$7000 that you invest at 9% simple interest. What is the balance after 14 years?

A) \$12,390 B) \$15,820 C) \$63,000 D) \$882,000

- 2. You borrow \$4000 on a 7.5% discounted loan for a period of 15 months. What is the amount of discount on this loan?
- A) \$300 B) \$375 C) \$415 D) \$450

3. What is the actual rate of interest on this loan?
A) 7.5% B) 8.1% C) 8.3% D) 10.3%

4. You have \$7000 that you invest at 9%, compounded quarterly. What is the balance after 14 years?

A) \$15,820 B) \$24,336 C) \$63,000 D) \$63,882

5. Suppose you invest in an account that pays 6% interest, compounded quarterly. You would like your investment to grow to \$8000 in 14 years. How much would you have to invest in order for this to happen?

A) \$2125 B) \$2290 C) \$2650 D) \$3475

6. What is the effective annual rate (APY) for 10.2% compounded quarterly?

A) 9.5% B) 9.7% C) 10.2% D) 10.6%

7. At the end of each month, Juanita deposits \$100 into a savings account earning 11% interest compounded monthly. How much is the account worth at the end of five years?

A) \$7952 B) \$9827 C) \$10,450 D) \$11,150

8. May takes out a conventional loan to purchase a car. The interest rate is 6.8% compounded monthly and May has six years to repay the \$10,000 she borrowed. What are May's monthly payments?

A) \$95.46 B) \$139.33 C) \$169.53 D) \$290.15

9. Suppose that a nine-member committee needs to elect one of the four alternatives. Their preference schedule is shown below. Which alternative is the head-to-head winner?

Number of Votes		4	3	2
First choice		A	В	С
Second choice		В	D	D
Third choice		С	А	В
Fourth choice		D	С	Α
A	B) B	C) C	D) D

A)

10. Find the sum [12] + [23] in Z_{11} :

A) [2]
B) [1]
C) [9]
D) [5]

- 11. Suppose that a linear code has codewords {000000, 001001, 010110, 011111, 100101, 101100, 110011, 111010}. Determine the maximum number of errors that can be detected.
 - A) 1
 B) 2
 C) 3
 D) 6

12. Suppose that the generator matrix for a (4,8)-code is $\begin{bmatrix}
1 & 0 & 0 & 0 & 1 & 1 & 1 & 0 \\
0 & 1 & 0 & 0 & 1 & 1 & 0 & 1 \\
0 & 0 & 1 & 0 & 1 & 0 & 1 & 1 \\
0 & 0 & 0 & 1 & 0 & 1 & 1 \end{bmatrix}$

Find the codeword corresponding to 1011.

- A) 10111011
- B) 10110011
- C) 10110010
- D) 10111010