

Work Session 1

1. Define the following terms:

Life Cycle Period:

Discounting:

Compounding:

2. Which of the following variables are required to calculate the Future Value (*FV*) of a single payment amount?

a) Simple Payback Period

b) Discount Rate, (*d*)

c) Initial Investment Amount, (*PV*)

d) Interest Rate, (*i*)

e) Annuity Value, (*A*)

f) Number of Periods, (*N*)

3. A bank offers you two interest rates for your savings account. The first rate: 7.50 percent compounded annually. The second rate: 7.40 percent compounded monthly. Which rate yields the higher return at the end of one year? Why (show your work)?

4. True or False? The Present Value (*PV*) of a series of cash flows occurring over time will be less than the Future Value (*FV*)? _____.

Why? _____

5. Calculate the Future Value (*FV*) of a \$2,000.00 periodic annual investment at an interest rate of 8 percent, compounded monthly over a period of 20 years.

6. What are the five types of decisions between alternatives that are made in life cycle costing studies?
1. _____
 2. _____
 3. _____
 4. _____
 5. _____

7. True or False. When the affects of inflation are included the discount rate is described as the real rate and the dollars are said to be in current dollars.

8. Assuming a business has a MARR of 7 percent and inflation is assumed to be 2.5 percent. The business will need to accumulate \$250,000.00 to replace a system in 15 years. How much is needed in today's dollars to have the \$250,000 (show your work)?

9. A building owner wants to compare the LCC electric cost of three systems, system, the current system, is \$14,500 / year, system 2 is \$13,750 / year and system 3 is \$12,500. If the owner is willing to break-even in 10 years what is the most he can spend today if electricity is expected to increase in cost at 3.5 percent per year and the MARR is 8 percent?

10. A contractor proposes to install an economizer on an existing packaged rooftop unit. The installed cost of the economizer is \$1,500. It is estimated that the economizer will save \$25/month in energy costs. Assume the rooftop unit will last ten more years before it needs replacing. The building owner can yield 7.50 percent return (compounded monthly) on a bank money market fund. Should the owner purchase the economizer or deposit the \$1,500 into her bank account (show your work)?

11. What is MARR?

12. List four methods of determining residual value.

1. _____
2. _____
3. _____
4. _____

13. Some costs included in investment costs include first cost, capital replacement costs, residual value, taxes and finance costs. True or false.

14. Electricity is frequently billed based on two components _____ and _____.

15. What can best be seen in looking at a cash flow analysis?
