

Quiz 1
IE 2326, Engineering Economy
Spring, 2012

Name: Answers

ID#(last 4 digits) _____

1. John Deere expects the cost of a certain tractor part to increase by \$5 /yr beginning 4 years from now. If the cost in years 1-3 is \$60, the present worth of the cost thru year 10 at an interest rate of 10%/yr is how much?

$$P_2 = 60(5.3349) + 5(16.0287) = 400.24$$

$$P_2 = 60(P/A, 10\%, 8) + 5(P/G, 10\%, 8) = 400.24$$

$$P_0 = 400.24(.8264) = 330.76$$

$$P_0 = P_2(P/F, 10\%, 2) = \$330.76$$

$$P_A = 60(1.7355) = 104.13$$

$$P_A = 60(P/A, 10\%, 2) = \$104.13$$

$$\text{Answer: } P_T = P_0 + P_A = 330.76 + 104.13 = \underline{\underline{434.89}}$$

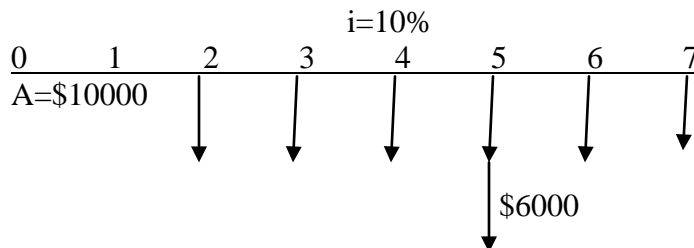
2. A contractor purchased equipment for \$60,000 which provided income of \$9,765 per year. At an interest rate of 10% per year, the length of time required to recover the investment was how many years?

$$60,000(A/P, 10\%, n) = \$9,765$$

$$(A/P, 10\%, n) = 0.16275$$

n = 10 years

3. The equivalent annual worth in yrs 1-7 for the cash flow shown below at $i=10\%$ per year is how much:



$$A = [10,000(F/A, 10\%, 6) + 6,000(F/P, 10\%, 2)](A/F, 10\%, 7)$$

$$= [10,000(7.7156) + 6,000(1.2100)](0.10541)$$

$$= \underline{\underline{\$8,898.29}}$$

4. Write the generic equation for geometric shifted gradients.

$$\text{Answer: } P = A \left\{ 1 - \frac{[(1+g)/(1+i)]^n}{(i-g)} \right\}$$

5. A small company wants to make a single deposit now so it will have enough money to purchase a new truck costing \$50,000 five years from now. If the account will earn interest of 10% per year, the amount that must be deposited is nearest to:

$$P = 50000 (P/F, 10\%, 5)$$

$$= 50000 (0.6209)$$

$$= \underline{\underline{\$ 31,045}}$$