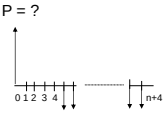
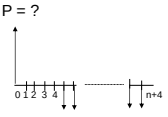
## Combining Factors – Shifted Uniform Series

Question: What is *P* for the following cash flow, a shifted uniform series of *n* equal installments? The first installment occurs at the end of period 5.






## Combining Factors – Shifted Uniform Series

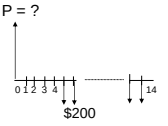



Approaches for finding *P*:

- Use (*P*/*F*) for each of the *n* payments.
- Use (*F*/*P*) for each of the payments to find $F_T$, then use $F_T(P/F,i\%,n+4)$ to find *P*.
- Use (*P*/*A*) to find the $P_4$, then use $P_4(P/F,i\%,4)$ to find *P*.



## Combining Factors – Shifted Uniform Series




Example: What is *P* for a computer you purchase in which installments of $200 are paid for 10 months, with the first payment deferred until the 5th month after purchase. Assume i = 0.5% per month.

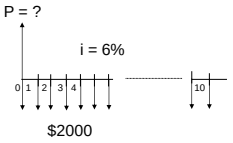
*A* = $200

$P_4$ = _____

*P* = _____

*P* = _____

## Combining Factors – Shifted Uniform Series




Example: What is the present worth of an account in which you invest $2000 beginning now and at the end of each year for 10 years? The account pays interest at 6%.

*P* = _____

*P* = _____



## Combining Factors – Shifted Uniform Series


Example: What is *F* for the cash flow shown above, in which installments of $200 are paid at the end of periods 5 through 14? Assume i = 5%.

*A* = _____

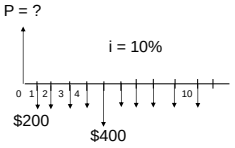
*F* = _____

*F* = _____

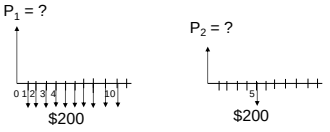
What is the account worth in period 20 (no installments made after period 14)?



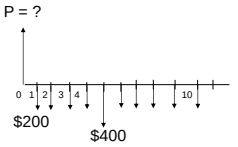
## Combining Factors – Single Amounts and Uniform Series



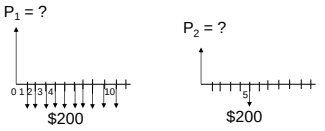

How might you approach the above cost flow? $200 paid in periods 1,2,3,4,6,7,8,9,10; and $400 paid in periods 5.



## Combining Factors – Single Amounts and Uniform Series

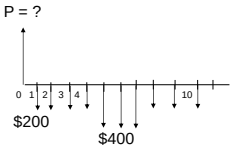



$P$ = \$200($P$/$A$,*10*%,10) + \$200($P$/$F$,*10*%,5) = _____

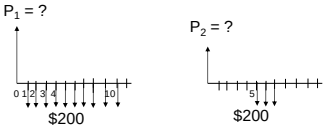





## Combining Factors – Multiple Uniform Series

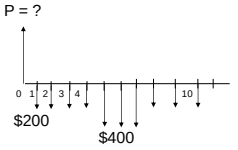



How might you approach the above cost flow? \$200 paid in periods 1,2,3,4,8,9,10; and \$400 paid in periods 5,6,7.

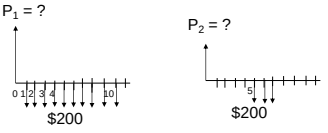




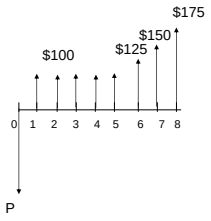

## Combining Factors – Multiple Uniform Series




$P$ = \$200($P$/$A$,$i$%,10) + \$200($P$/$A$,$i$%,3)($P$/$F$,$i$%,4)



## Combining Factors – Shifted Gradients

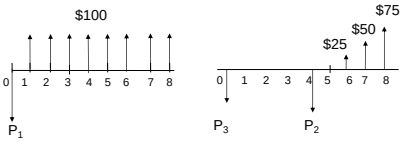





## Your turn – draw the cash flow diagram(s) ….



## Combining Factors – Shifted Gradients

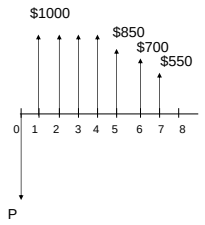



*P* = _____

*P* = _____

Note, $P_2$ term is for ____ periods.

## Combining Factors – Shifted Decreasing Gradients

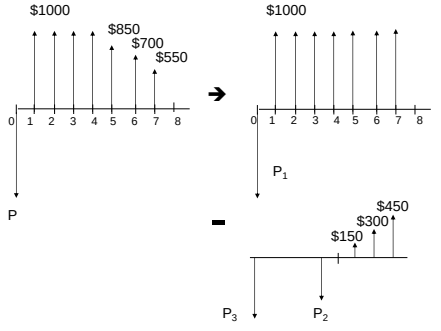




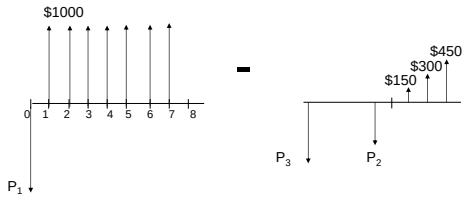

## Draw the cash flow diagrams …



## Combining Factors – Shifted Decreasing Gradients



## Combining Factors – Shifted Decreasing Gradients




*P* = _____

*P* = _____

Note, $P_2$ term is for ___ periods.