Douglas College

Douglas College Learning Centre

TIME VALUE OF MONEY DECISION TREE (BUSN 1330)

Simple or Compounding?

(t is in years- divide by 12 if months, or 360 (or 365) if days, etc.)

Continuous or Other?

$FV = PVe^{rt}$

(make sure you use periodic rate so p?=c?)
$i = r/m$ $n = mt$

Interest Amount? or PV/ FV / r / t?

$I = Prt$

$FV = PV(1 + rt)$

$PV = FV/(1 + rt)$

Equal Payments (Annuity) or Lump Sum (or unequal payments)?

$FV = PV(1 + i)^n$

$$PV = \frac{FV}{(1+i)^n}$$

Payment Period = Compounding Period?

if not, use equivalent effective rate of interest per payment period for i
$i = (1 + i)^c - 1$ $\left(c = \frac{\text{\# cmpd periods per yr}}{\text{\# pmt periods per yr}}\right)$

Payments at End (Ordinary Annuity) or Start of Period? (Annuity Due)

(accumulating - PV = 0) or (depleting - FV = 0)
FV or PV?

$$FV = PMT\left[\frac{(1+i)^n - 1}{i}\right]$$

$$PV = PMT\left[\frac{1-(1+i)^{-n}}{i}\right]$$

(accumulating or depleting)
FV or PV?

$$FV = PMT\left[\frac{(1+i)^{n+1} - 1}{i} - 1\right]$$

$$PV = PMT(1+i)\left[\frac{1-(1+i)^{-n}}{i}\right]$$