

Section 9.1

Simple Interest \$ = I

Annual Simple Interest Rate = R

Principal Amount Borrowed = P

Time = Fraction of Year = T

$$I = P * R * T$$

{ Fraction of year from months }

$$= \frac{\text{\# of Months}}{12}$$

{ Fraction of year from Day's Exact Method }

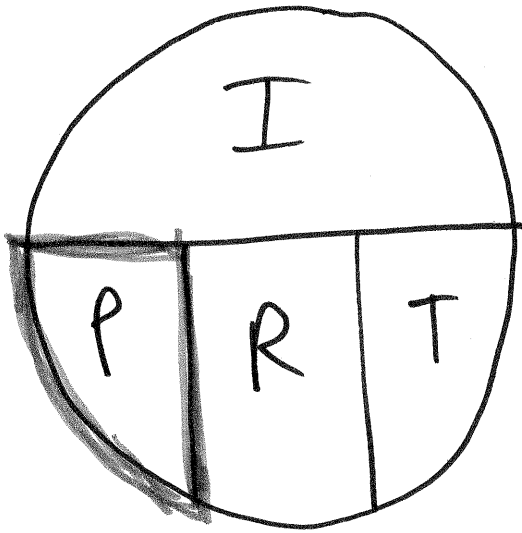
$$= \frac{\text{\# of Days}}{365 \text{ or } 366}$$

Leap year



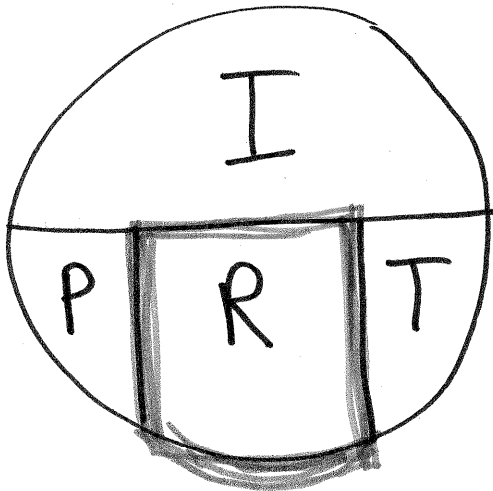
{ Fraction of year from Day's Banker's Method }

$$= \frac{\text{\# of Days}}{360}$$



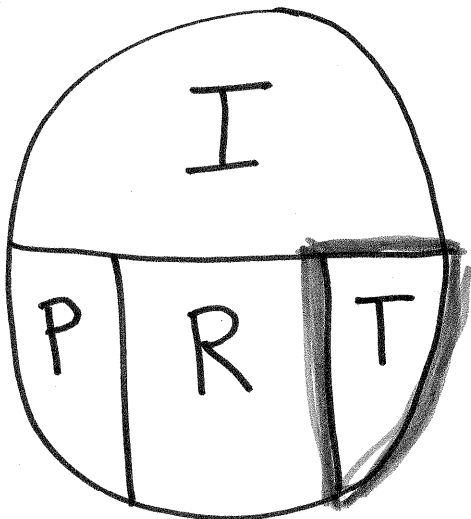
$$P = \frac{I}{(R * T)}$$

in Excel =  $I / (R * T)$



$$R = \frac{I}{(P * T)}$$

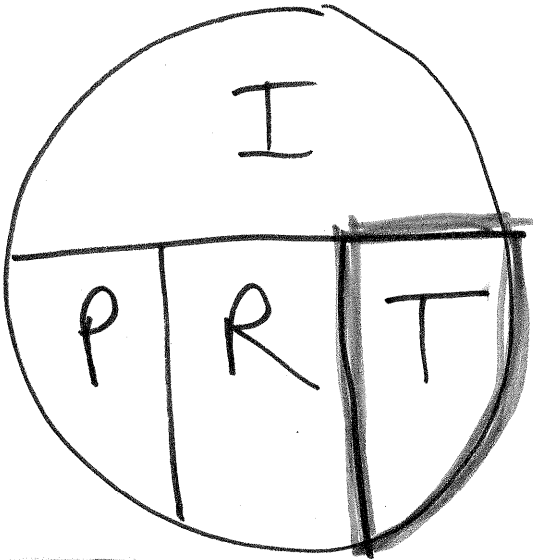
in Excel =  $I / (P * T)$



$$T = \frac{I}{(P * R)}$$

in Excel =  $I / (P * R)$

section 9.2



$$T = \frac{I}{(P * R)}$$

Fraction of year

$$= T_y = \frac{I}{(P * R)}$$

In Months

$$= T_m = \frac{I}{(P * R)} * 12$$

Excel =  $I / (P * R) * 12$

In Days Banker's Interest

$$= T_d = \frac{I}{(P * R)} * 360$$

Excel =  $I / (P * R) * 360$

Maturity Value =  $M$

Discount Rate =  $D$

Time (years) =  $T$

Bank Discount =  $B$   
(Interest paid up front)

Proceeds (Loan Amount) =  $P$

Formulas:

$$1) B = M * D * T$$

$$2) \left\{ \begin{array}{l} \text{Effective Simple} \\ \text{Discount Rate} \end{array} \right\} = \frac{B}{(P * T)}$$

$$3) M = \frac{P}{(1 - D * T)}$$

$$4) P = M - B$$