

# Formula Cheat Sheet

## ONE TIME DEPOSIT

How is the interest paid?

### 1. SIMPLE Interest:

- To find interest:  $I = PRT$
- To find ending balance:  $B = P + PRT$

### 2. Compound Interest:

- If you are looking for any of the unknowns:

$$B = P \left( 1 + \frac{r}{n} \right)^{nt}$$

- If you are looking for the Interest:

$$I = P \left( 1 + \frac{r}{n} \right)^{nt} - P$$

### 3. CONTINUOUS Compounding:

- If you are looking for any of the unknowns:  $A = Pe^{rt}$
- If you are looking for the Interest:  $I = Pe^{rt} - P$

## MULTIPLE DEPOSITS

Are you making deposits or withdrawals?

### 4. DEPOSITS:

- If you are looking for any of the unknowns:

$$B = \frac{P \left( \left( 1 + \frac{r}{n} \right)^{nt} - 1 \right)}{\frac{r}{n}}$$

- If you are looking for the Interest:

$$I = \frac{P \left( \left( 1 + \frac{r}{n} \right)^{nt} - 1 \right)}{\frac{r}{n}} - (P \cdot n \cdot t)$$

### 5. WITHDRAWALS:

$$P = W \bullet \frac{1 - \left( 1 + \frac{r}{n} \right)^{-nt}}{\frac{r}{n}}$$

A = ending balance

B = ending (future) balance

I = interest amount

N = number of compounds annually

P = principal (present value) (periodic deposit) (beginning amount)

R = interest rate, converted

T = time in years

W = periodic withdrawal amount

	Time period	n =
Annually	1 year	1
Semiannually	6 months	2
Quarterly	3 months	4
Monthly	1 month	12
Weekly	7 days	52
Daily	1 day	365