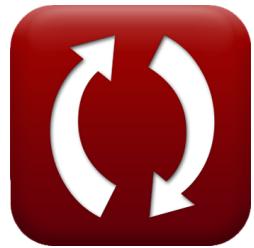




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# Basic Formulas in Construction Planning and Management

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# List of 15 Basic Formulas in Construction Planning and Management

## Basic Formulas in Construction Planning and Management ↗

### Critical Path Method ↗

#### 1) Earliest Finish Time ↗

$$fx \quad EFT = LFT - TF_0$$

[Open Calculator ↗](#)

$$ex \quad 26d = 50d - 24d$$

#### 2) Free Float given Indenpendent Float ↗

$$fx \quad FF_0 = IF_0 + S$$

[Open Calculator ↗](#)

$$ex \quad 18d = 12d + 6.0d$$

#### 3) Free Float used in CPM ↗

$$fx \quad FF_0 = TF_0 - S$$

[Open Calculator ↗](#)

$$ex \quad 18d = 24d - 6.0d$$



#### 4) Independent Float used in CPM ↗

**fx**  $IF_0 = FF_0 - S$

**Open Calculator ↗**

**ex**  $12d = 18d - 6.0d$

#### 5) Interfering Float ↗

**fx**  $IF = TF_0 - FF_0$

**Open Calculator ↗**

**ex**  $6d = 24d - 18d$

#### 6) Latest Finish Time ↗

**fx**  $LFT = TF_0 + EFT$

**Open Calculator ↗**

**ex**  $50d = 24d + 26d$

#### 7) Slack of Event given Independent Float ↗

**fx**  $S = FF_0 - IF_0$

**Open Calculator ↗**

**ex**  $6d = 18d - 12d$

#### 8) Slack of Event in CPM ↗

**fx**  $S = TF_0 - FF_0$

**Open Calculator ↗**

**ex**  $6d = 24d - 18d$



**9) Total Float given Free Float** 

**fx**  $TF_0 = FF_0 + S$

**Open Calculator** 

**ex**  $24d = 18d + 6.0d$

**10) Total Float in CPM** 

**fx**  $TF_0 = LFT - EFT$

**Open Calculator** 

**ex**  $24d = 50d - 26d$

**Time Cost Relation** **11) Cost Slope** 

**fx**  $CS = \frac{CC - NC}{NT - CT}$

**Open Calculator** 

**ex**  $100 = \frac{400 - 300}{7d - 6d}$

**12) Crash Cost given Cost Slope** 

**fx**  $CC = (CS \cdot (NT - CT)) + NC$

**Open Calculator** 

**ex**  $400 = (100 \cdot (7d - 6d)) + 300$



### 13) Crash Time given Slope ↗

**fx** 
$$CT = - \left( \left( \frac{CC - NC}{CS} \right) - NT \right)$$

[Open Calculator ↗](#)

**ex** 
$$6d = - \left( \left( \frac{400 - 300}{100} \right) - 7d \right)$$

### 14) Normal Cost given Slope ↗

**fx** 
$$NC = CC - (CS \cdot (NT - CT))$$

[Open Calculator ↗](#)

**ex** 
$$300 = 400 - (100 \cdot (7d - 6d))$$

### 15) Normal Time given Slope ↗

**fx** 
$$NT = \left( \frac{CC - NC}{CS} \right) + CT$$

[Open Calculator ↗](#)

**ex** 
$$7d = \left( \frac{400 - 300}{100} \right) + 6d$$



## Variables Used

- **CC** Crash Cost
- **CS** Cost Slope
- **CT** Crash Time (*Day*)
- **EFT** Earliest Finish Time (*Day*)
- **FF<sub>0</sub>** Free Float (*Day*)
- **IF** Interfering Float (*Day*)
- **IF<sub>0</sub>** Independent Float (*Day*)
- **LFT** Latest Finish Time (*Day*)
- **NC** Normal Cost
- **NT** Normal Time (*Day*)
- **S** Slack of an Event (*Day*)
- **TF<sub>0</sub>** Total Float (*Day*)



# Constants, Functions, Measurements used

- **Measurement:** Time in Day (d)

Time Unit Conversion 



## Check other formula lists

- [Basic Formulas in Construction Planning and Management](#) ↗
- [Construction Management Formulas](#) ↗
- [Project Evaluation and Review Technique Formulas](#) ↗
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