



[calculatoratoz.com](http://calculatoratoz.com)



[unitsconverters.com](http://unitsconverters.com)

# Overtaking Sight Distance Formulas

Calculators!

Examples!

Conversions!

Bookmark [calculatoratoz.com](http://calculatoratoz.com), [unitsconverters.com](http://unitsconverters.com)

Widest Coverage of Calculators and Growing - **30,000+ Calculators!**  
Calculate With a Different Unit for Each Variable - **In built Unit Conversion!**  
Widest Collection of Measurements and Units - **250+ Measurements!**

Feel free to SHARE this document with your friends!

[Please leave your feedback here...](#)



# List of 13 Overtaking Sight Distance Formulas

## Overtaking Sight Distance

### 1) Acceleration given Actual Overtaking Time and Overtaking Space

$$fx \quad a_{\text{overtaking}} = \frac{4 \cdot s}{T^2}$$

[Open Calculator !\[\]\(a870788d6ed9b8fd294b7654a8c8526b\_img.jpg\)](#)

$$ex \quad 2.800532\text{m/s}^2 = \frac{4 \cdot 27\text{m}}{(6.21\text{s})^2}$$

### 2) Actual Overtaking Distance

$$fx \quad d_2 = 2 \cdot s + V_{\text{speed}} \cdot \sqrt{\frac{4 \cdot s}{a_{\text{overtaking}}}}$$

[Open Calculator !\[\]\(c50c8b7b2cc2cf9ff925edec0ee94c0d\_img.jpg\)](#)

$$ex \quad 79.81681\text{m} = 2 \cdot 27\text{m} + 6.88\text{m/s} \cdot \sqrt{\frac{4 \cdot 27\text{m}}{7.67\text{m/s}^2}}$$

### 3) Actual Overtaking Time given Distance Traveled by On-Coming Vehicle

$$fx \quad T = \frac{d_3}{V_{\text{speed}}}$$

[Open Calculator !\[\]\(f60b7a900783ac3fd531bfd9c111be6d\_img.jpg\)](#)

$$ex \quad 2.325581\text{s} = \frac{16\text{m}}{6.88\text{m/s}}$$



#### 4) Actual Overtaking Time given Overtaking Space and Acceleration

[Open Calculator !\[\]\(4729e517bc6a7cd81c8025b9646574fb\_img.jpg\)](#)

$$fx \quad T = \sqrt{\frac{4 \cdot s}{a_{\text{overtaking}}}}$$

$$ex \quad 3.752444s = \sqrt{\frac{4 \cdot 27m}{7.67m/s^2}}$$

#### 5) Distance Traveled by On-Coming Vehicle

[Open Calculator !\[\]\(e474458956c9a37fbf9586ddb60a7fa1\_img.jpg\)](#)

$$fx \quad d_3 = V_{\text{speed}} \cdot T$$

$$ex \quad 42.7248m = 6.88m/s \cdot 6.21s$$

#### 6) Distance Traveled by Overtaking Vehicle

[Open Calculator !\[\]\(4fe57c3593bf1b21d272ae7ac8dfaf77\_img.jpg\)](#)

$$fx \quad d_1 = V_{\text{speed}} \cdot t_{\text{reaction}}$$

$$ex \quad 68.8m = 6.88m/s \cdot 10s$$

#### 7) Overtaking Sight Distance given Distance Traveled

[Open Calculator !\[\]\(2bae76de5ebbd5c4d7d47162f1673734\_img.jpg\)](#)

$$fx \quad OSD = d_1 + d_2 + d_3$$

$$ex \quad 62m = 25m + 21m + 16m$$

#### 8) Overtaking Space

[Open Calculator !\[\]\(5d954b3e270654ad8ab0d5913161c03c\_img.jpg\)](#)

$$fx \quad s = 0.7 \cdot V_{\text{speed}} + 6$$

$$ex \quad 10.816m = 0.7 \cdot 6.88m/s + 6$$



## 9) Overtaking Space given Actual Overtaking Time and Acceleration

$$\text{fx } s = \frac{T^2 \cdot a_{\text{overtaking}}}{4}$$

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95\_img.jpg\)](#)

$$\text{ex } 73.94666\text{m} = \frac{(6.21\text{s})^2 \cdot 7.67\text{m/s}^2}{4}$$

## 10) Reaction Time Given Overtaking Distance and Vehicle Speed

$$\text{fx } t_{\text{reaction}} = \frac{d_1}{V_{\text{speed}}}$$

[Open Calculator !\[\]\(05be7c7a8995decd503647c99211f7c2\_img.jpg\)](#)

$$\text{ex } 3.633721\text{s} = \frac{25\text{m}}{6.88\text{m/s}}$$

## 11) Vehicle Speed given Distance Traveled by On-Coming Vehicle

$$\text{fx } V_{\text{speed}} = \frac{d_3}{T}$$

[Open Calculator !\[\]\(fe3aebe81acea8d45108cd2768939da7\_img.jpg\)](#)

$$\text{ex } 2.57649\text{m/s} = \frac{16\text{m}}{6.21\text{s}}$$

## 12) Vehicle Speed Given Overtaking Distance and Reaction Time

$$\text{fx } V_{\text{speed}} = \frac{d_1}{t_{\text{reaction}}}$$

[Open Calculator !\[\]\(899d8b7697d64725bf017d3296cfcf1b\_img.jpg\)](#)

$$\text{ex } 2.5\text{m/s} = \frac{25\text{m}}{10\text{s}}$$



### 13) Vehicle Speed given Overtaking Space

[Open Calculator !\[\]\(bd1a142de767a21e5362c595f844a4ff\_img.jpg\)](#)

$$\text{fx } V_{\text{speed}} = \frac{s - 6}{0.7}$$

$$\text{ex } 30\text{m/s} = \frac{27\text{m} - 6}{0.7}$$







## Variables Used

- **$a_{\text{overtaking}}$**  Overtaking Acceleration (Meter per Square Second)
- **$d_1$**  Distance Traveled by Overtaking Vehicle (Meter)
- **$d_2$**  Distance of Actual Overtaking (Meter)
- **$d_3$**  Distance Traveled by On-Coming Vehicle (Meter)
- **OSD** Overtaking Sight Distance (Meter)
- **s** Overtaking Space (Meter)
- **T** Actual Overtaking Time (Second)
- **$t_{\text{reaction}}$**  Reaction Time (Second)
- **$V_{\text{speed}}$**  Vehicle Speed (Meter per Second)



## Constants, Functions, Measurements used

- **Function:** **sqrt**,  $\text{sqrt}(\text{Number})$   
*Square root function*
- **Measurement:** **Length** in Meter (m)  
*Length Unit Conversion* 
- **Measurement:** **Time** in Second (s)  
*Time Unit Conversion* 
- **Measurement:** **Speed** in Meter per Second (m/s)  
*Speed Unit Conversion* 
- **Measurement:** **Acceleration** in Meter per Square Second ( $\text{m/s}^2$ )  
*Acceleration Unit Conversion* 



## Check other formula lists

- **Overtaking Sight Distance Formulas** 

Feel free to SHARE this document with your friends!

## PDF Available in

[English](#) [Spanish](#) [French](#) [German](#) [Russian](#) [Italian](#) [Portuguese](#) [Polish](#) [Dutch](#)

11/17/2023 | 3:27:39 AM UTC

[Please leave your feedback here...](#)

