

Important Load on Wheels in Race Cars Formulas PDF



Formulas
Examples
with Units

List of 13 Important Load on Wheels in Race Cars Formulas

1) Front Lateral Load Transfer given Load on Front Inside Wheel in Cornering Formula

Formula	Example with Units
$W_f = W - W_i$	$124.1352 \text{ kg} = 524.1352413 \text{ kg} - 400 \text{ kg}$

Evaluate Formula

2) Front Lateral Load Transfer given Load on Front Outside Wheel in Cornering Formula

Formula	Example with Units
$W_f = W' - W$	$161.8648 \text{ kg} = 686 \text{ kg} - 524.1352413 \text{ kg}$

Evaluate Formula

3) Maximum Speed of Vehicle Formula

Formula	Example with Units
$V_m = \frac{\pi \cdot n_p \cdot r_d}{30 \cdot i_o \cdot i_g}$	$157.0164 \text{ m/s} = \frac{3.1416 \cdot 35000 \text{ rev/min} \cdot 0.45 \text{ m}}{30 \cdot 2 \cdot 0.55}$

Evaluate Formula

4) Rear Lateral Load Transfer given Load on Rear Inside Wheel in Cornering Formula

Formula	Example with Units
$W_f = W - W_i$	$124.1352 \text{ kg} = 524.1352413 \text{ kg} - 400 \text{ kg}$

Evaluate Formula

5) Rear Lateral Load Transfer given Load on Rear Outside Wheel in Cornering Formula

Formula	Example with Units
$W_r = W' - W$	$161.8648 \text{ kg} = 686 \text{ kg} - 524.1352413 \text{ kg}$

Evaluate Formula

6) Wheel Load on Front Inside Wheel during Cornering Formula

Formula	Example with Units
$W' = W - W_f$	$298.1352 \text{ kg} = 524.1352413 \text{ kg} - 226 \text{ kg}$

Evaluate Formula



7) Wheel Load on Front Inside Wheel in Static Condition given Load during Cornering Formula

Formula

$$W = W' + W_f$$

Example with Units

$$912\text{ kg} = 686\text{ kg} + 226\text{ kg}$$

Evaluate Formula 

8) Wheel Load on Front Outside Wheel during Cornering Formula

Formula

$$W' = W + W_f$$

Example with Units

$$750.1352\text{ kg} = 524.1352413\text{ kg} + 226\text{ kg}$$

Evaluate Formula 

9) Wheel Load on Front Outside Wheel in Static Condition given Load during Cornering Formula

Formula

$$W = W' - W_f$$

Example with Units

$$460\text{ kg} = 686\text{ kg} - 226\text{ kg}$$

Evaluate Formula 

10) Wheel Load on Rear Inside Wheel during Cornering Formula

Formula

$$W' = W - W_r$$

Example with Units

$$362.2652\text{ kg} = 524.1352413\text{ kg} - 161.87\text{ kg}$$

Evaluate Formula 

11) Wheel Load on Rear Inside Wheel in Static Condition given Load during Cornering Formula

Formula

$$W = W' + W_r$$

Example with Units

$$847.87\text{ kg} = 686\text{ kg} + 161.87\text{ kg}$$

Evaluate Formula 

12) Wheel Load on Rear Outside Wheel during Cornering Formula

Formula

$$W' = W + W_r$$

Example with Units

$$686.0052\text{ kg} = 524.1352413\text{ kg} + 161.87\text{ kg}$$

Evaluate Formula 

13) Wheel Load on Rear Outside Wheel in Static Condition given Load during Cornering Formula

Formula

$$W = W' - W_r$$

Example with Units

$$524.13\text{ kg} = 686\text{ kg} - 161.87\text{ kg}$$

Evaluate Formula 



Variables used in list of Load on Wheels in Race Cars Formulas above

- i_g Minimum Gear Ratio of Transmission
- i_o Gear Ratio of Final Drive
- n_p Speed of Engine at Maximum Power (Revolution per Minute)
- r_d Effective Radius of Wheel (Meter)
- V_m Maximum Speed of Vehicle (Meter per Second)
- W Load on Individual Wheel in Static Condition (Kilogram)
- W' Individual Load Wheel During Cornering (Kilogram)
- W_f Front Lateral Load Transfer (Kilogram)
- W_i Individual Load on Inner Wheel During Cornering (Kilogram)
- W_r Rear Lateral Load Transfer (Kilogram)

Constants, Functions, Measurements used in list of Load on Wheels in Race Cars Formulas above

- **constant(s):** π , 3.14159265358979323846264338327950288
Archimedes' constant
- **Measurement: Length** in Meter (m)
Length Unit Conversion 
- **Measurement: Weight** in Kilogram (kg)
Weight Unit Conversion 
- **Measurement: Speed** in Meter per Second (m/s)
Speed Unit Conversion 
- **Measurement: Angular Velocity** in Revolution per Minute (rev/min)
Angular Velocity Unit Conversion 



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9/18/2024 | 11:23:10 AM UTC

