



Ride Rate and Ride Frequency for Race Cars Formulas

Calculators!

Examples!

Conversions!

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List of 12 Ride Rate and Ride Frequency for **Race Cars Formulas**

Ride Rate and Ride Frequency for Race Cars

1) Front Bump Allowance given Front Ride Rate 🗗

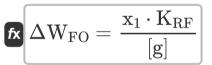


 $\mathbf{x}_1 = rac{\Delta \mathrm{W_{FO}} \cdot [\mathrm{g}]}{\mathrm{K_{RF}}}$

Open Calculator

$$oxed{ex} 0.070001 \mathrm{m} = rac{226 \mathrm{kg} \cdot [\mathrm{g}]}{31661 \mathrm{N/m}}$$

2) Front Outside Wheel Load Change given Front Ride Rate 🗗



Open Calculator

$$extbf{ex} 225.9966 ext{kg} = rac{0.070 ext{m} \cdot 31661 ext{N/m}}{ ext{[g]}}$$





Open Calculator

Open Calculator

Open Calculator

3) Front Ride Frequency 🗲

 $\omega_{
m F} = rac{0.5}{\pi} \cdot \sqrt{rac{{
m K}_{
m RF}}{{
m W}}}$

Open Calculator

 π V W

ex $1.320394 \mathrm{Hz} = rac{0.5}{\pi} \cdot \sqrt{rac{31661 \mathrm{N/m}}{460 \mathrm{kg}}}$

4) Front Ride Rate

 $extbf{K} extbf{K}_{ ext{RF}} = rac{\Delta ext{W}_{ ext{FO}} \cdot [ext{g}]}{ ext{x}_1}$

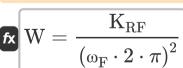
= $31661.47 \mathrm{N/m} = \frac{226 \mathrm{kg} \cdot [\mathrm{g}]}{0.070 \mathrm{m}}$

5) Front Ride Rate given Front Ride Frequency

 $\mathbf{K} \mathbf{K}_{\mathrm{RF}} = (\mathbf{\omega}_{\mathrm{F}} \cdot 2 \cdot \pi)^2 \cdot \mathbf{W}$

 $\mathbf{ex} \left[32123.35 \mathrm{N/m} = \left(1.33 \mathrm{Hz} \cdot 2 \cdot \pi \right)^2 \cdot 460 \mathrm{kg} \right]$

6) Load on Front Wheel given Front Ride Frequency



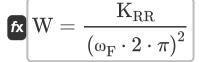
ex
$$453.3792 ext{kg} = rac{31661 ext{N/m}}{\left(1.33 ext{Hz} \cdot 2 \cdot \pi\right)^2}$$







7) Load on Rear Wheel given Rear Ride Frequency



Open Calculator 🗗

ex
$$454.625 \text{kg} = \frac{31748 \text{N/m}}{\left(1.33 \text{Hz} \cdot 2 \cdot \pi\right)^2}$$

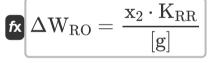
8) Rear Bump Allowance given Rear Ride Rate



Open Calculator

$$=$$
 $0.05 \mathrm{m} = rac{161.87 \mathrm{kg} \cdot [\mathrm{g}]}{31748 \mathrm{N/m}}$

9) Rear Outside Wheel Load Change given Rear Ride Rate

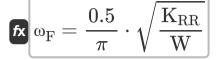


Open Calculator 🗗

$$oxed{egin{align*} ext{ex} 161.8698 ext{kg} = rac{0.05 ext{m} \cdot 31748 ext{N/m}}{[ext{g}]} \end{split}}$$



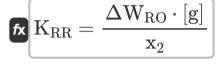
10) Rear Ride Frequency



Open Calculator

ex
$$1.322207 ext{Hz} = rac{0.5}{\pi} \cdot \sqrt{rac{31748 ext{N/m}}{460 ext{kg}}}$$

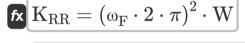
11) Rear Ride Rate



Open Calculator

$$= \frac{31748.05 \text{N/m} = \frac{161.87 \text{kg} \cdot [\text{g}]}{0.05 \text{m}} }$$

12) Rear Ride Rate given Rear Ride Frequency



Open Calculator 🗗

 $\mathbf{ex} [32123.35 \mathrm{N/m} = (1.33 \mathrm{Hz} \cdot 2 \cdot \pi)^2 \cdot 460 \mathrm{kg}]$



Variables Used

- **K**_{RF} Front Ride Rate (Newton per Meter)
- KRR Rear Ride Rate (Newton per Meter)
- W Load on Individual Wheel in Static Condition (Kilogram)
- X₁ Front Bump Allowance (Meter)
- X₂ Rear Bump Allowance (Meter)
- ΔW_{FO} Front Outside Wheel Change (Kilogram)
- ΔW_{RO} Rear Outside Wheel Change (Kilogram)
- **ω**_F Ride Frequency (Hertz)





Constants, Functions, Measurements used

- Constant: pi, 3.14159265358979323846264338327950288
 Archimedes' constant
- Constant: [g], 9.80665 Meter/Second²

 Gravitational acceleration on Earth
- Function: sqrt, sqrt(Number)
 Square root function
- Measurement: Length in Meter (m)
 Length Unit Conversion
- Measurement: Weight in Kilogram (kg)
 Weight Unit Conversion
- Measurement: Frequency in Hertz (Hz)
 Frequency Unit Conversion
- Measurement: Surface Tension in Newton per Meter (N/m)

 Surface Tension Unit Conversion





Check other formula lists

- Rates for Axle Suspension in Race Car Formulas
- Ride Rate and Ride Frequency for Wheel Centre Rates for Race Cars Formulas [
- Vehicle Cornering in Race Cars Formulas Formulas
- Weight Transfer during Braking Formulas C
- **Independent Suspension**

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