Important Materials Required per km of Railway Track Formulas PDF

Formulas
Examples
with Units

List of 23
Important Materials Required per km of Railway Track Formulas

1) Density Factor at given Number of Sleepers per km Formula

Evaluate Formula

Formula

$$x = \left(2 \cdot \frac{N_s}{N}\right) - (L)$$

Example with Units

$$6 = \left(2 \cdot \frac{1463}{154}\right) - (13\,\text{m})$$

2) Density Factor using Sleeper Density Formula

Evaluate Formula

Formula

$$x = S.D. - L$$

Example with Units

$$6 = 19 - 13\,\text{m}$$

3) Length of Single Rail at given Number of Rails per km Formula

Evaluate Formula

Formula

$$L = \left(\frac{1000}{N}\right) \cdot 2$$

Example with Units

$$12.987\,\text{m} = \left(\frac{1000}{154}\right) \cdot 2$$

4) Length of Single Rail at given Number of Sleepers per km Formula

Evaluate Formula

Formula

$$L = \left(2 \cdot \frac{N_s}{N}\right) - (x)$$

Example with Units

$$13\,\text{m} = \left(2 \cdot \frac{1463}{154}\right) - (6)$$

5) Length of Single Rail at given Weight of Rails per km Formula

Evaluate Formula

Formula

$$L = \frac{1000 \cdot W}{N \cdot w}$$

Example with Units

$$13\,\text{m} = \frac{1000 \cdot 104.104\,\text{t}}{154 \cdot 52\,\text{kg/m}}$$

6) Length of Single Rail using Sleeper Density Formula

Evaluate Formula

Formula

$$L = S.D. - x$$

Example with Units

$$13\,\text{m} = 19 - 6$$

7) Number of Bearing Plates per km of Track Formula

Evaluate Formula

Formula

$$N_{bp} = 2 \cdot N_s$$

Example

$$2926 = 2 \cdot 1463$$

8) Number of Bearing Plates per km of Track using Number of Rails Formula

Evaluate Formula

Formula

$$N_{bp} = 4 \cdot N$$

Example

$$616 = 4 \cdot 154$$

9) Number of Dog Spikes per km of Track for Timber Sleepers Formula

Evaluate Formula

Formula

$$N_{ds} = 4 \cdot N_s$$

Example

$$5852 = 4 \cdot 1463$$

10) Number of Fish Bolts per km of Track Formula

Evaluate Formula

Formula

$$N_{fb} = 4 \cdot N$$

Example

$$616 = 4 \cdot 154$$

11) Number of Fish-Plates per km of Track Formula

Evaluate Formula

Formula

$$N_{fp} = 2 \cdot N$$

Example

$$308 = 2 \cdot 154$$

12) Number of Rails per km Formula

Evaluate Formula

Formula

$$N = \left(\frac{1000}{L}\right) \cdot 2$$

Example with Units

$$153.8462 = \left(\frac{1000}{13\,\text{m}}\right) \cdot 2$$

13) Number of Rails per km at given Number of Sleepers per km Formula

Evaluate Formula

Formula

$$N = 2 \cdot \frac{N_s}{L + x}$$

Example with Units

$$154 = 2 \cdot \frac{1463}{13\,\text{m} + 6}$$

14) Number of rails per km at given weight of rails per km Formula

Evaluate Formula

Formula

$$N = \frac{1000 \cdot W}{L \cdot w}$$

Example with Units

$$154 = \frac{1000 \cdot 104.104\,\text{t}}{13\,\text{m} \cdot 52\,\text{kg/m}}$$

15) Number of Rails using Bearing Plates Formula

Evaluate Formula

Formula

$$N_{Rbp} = \frac{N_b}{4}$$

Example

$$731.5 = \frac{2926}{4}$$

16) Number of Rails using Fish Bolts Formula

Evaluate Formula

Formula

$$N_{Rfb} = \frac{N_{fb}}{4}$$

Example

$$154 = \frac{616}{4}$$

17) Number of Rails using Fish Plates Formula

Evaluate Formula

Formula

$$N_{Rfp} = \frac{N_{fp}}{2}$$

Example

$$154 = \frac{308}{2}$$

18) Number of Sleepers per km Formula

Evaluate Formula

Formula

$$N_s = (L + x) \cdot \frac{N}{2}$$

Example with Units

$$1463 = (13\,\text{m} + 6) \cdot \frac{154}{2}$$

19) Number of Sleepers using Dog Spikes Formula

Evaluate Formula

Formula

$$N_{Sds} = \frac{N_{ds}}{4}$$

Example

$$1463 = \frac{5852}{4}$$

20) Number of Ssleepers using Bearing Plates Formula

Evaluate Formula

Formula

$$N_{Sbp} = \frac{N_{bp}}{2}$$

Example

$$1463 = \frac{2926}{2}$$

21) Sleeper Density Formula

Evaluate Formula

Formula

$$S.D. = L + x$$

Example with Units

$$19 = 13\,\text{m} + 6$$

22) Weight of Rail per m at given Weight of Rails per km Formula

Evaluate Formula

Formula

$$w = \frac{1000 \cdot W}{N \cdot L}$$

Example with Units

$$52\,\text{kg/m} = \frac{1000 \cdot 104.104\,\text{t}}{154 \cdot 13\,\text{m}}$$

23) Weight of Rails per km Formula

Evaluate Formula

Formula

$$W = N \cdot L \cdot \frac{w}{1000}$$

Example with Units

$$104.104\,\text{t} = 154 \cdot 13\,\text{m} \cdot \frac{52\,\text{kg/m}}{1000}$$

Variables used in list of Materials Required per km of Railway Track Formulas above

- **L** Length of Single Rail *(Meter)*
- **N** Number of Rails per Km
- N_b No of Bearing Plates using No of Rails
- N_{bp} Number of Bearing Plates per Km of Track
- N_{ds} Number of Dog-Spikes per Km of Track
- N_{fb} Number of Fish Bolts per Km of Track
- N_{fp} Number of Fish Plates per Km of Track
- N_{Rbp} No of Rails using Bearing Plates
- N_{Rfb} No of Rails using Fish Bolts
- N_{Rfp} No of Rails using Fish Plates
- N_s Number of Sleepers per Km
- N_{Sbp} No of Sleepers using Bearing Plates
- N_{Sds} No of Sleepers using Dog Spikes
- **S.D.** Sleeper Density
- **w** Weight of Rail per Meter *(Kilogram per Meter)*
- **W** Weight of Rails per Km *(Tonne)*
- **x** Density Factor

Constants, Functions, Measurements used in list of Materials Required per km of Railway Track Formulas above

- Measurement: **Length** in Meter (m)
  Length Unit Conversion
- Measurement: **Weight** in Tonne (t)
  Weight Unit Conversion
- Measurement: **Linear Mass Density** in Kilogram per Meter (kg/m)
  Linear Mass Density Unit Conversion

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