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Important Formulas of Ellipse

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List of 24 Important Formulas of Ellipse

Important Formulas of Ellipse 🔗

Area of Ellipse 🔗

1) Area of Ellipse 🔗

fx $A = \pi \cdot a \cdot b$

[Open Calculator 🔗]

ex $188.4956 m^2 = \pi \cdot 10m \cdot 6m$

2) Area of Ellipse given Linear Eccentricity and Semi Major Axis 🔗

fx $A = \pi \cdot a \cdot \sqrt{a^2 - c^2}$

[Open Calculator 🔗]

ex $188.4956 m^2 = \pi \cdot (10m) \cdot \sqrt{(10m)^2 - (8m)^2}$

3) Area of Ellipse given Major and Minor Axes 🔗

fx $A = \left(\dfrac{\pi}{4}\right) \cdot 2a \cdot 2b$

[Open Calculator 🔗]

ex $188.4956 m^2 = \left(\dfrac{\pi}{4}\right) \cdot 20m \cdot 12m$

Eccentricity and Linear Eccentricity of Ellipse

4) Eccentricity of Ellipse

Open Calculator

fx $e = \sqrt{1 - \left(\dfrac{b}{a}\right)^2}$

ex $0.8m = \sqrt{1 - \left(\dfrac{6m}{10m}\right)^2}$

5) Eccentricity of Ellipse given Linear Eccentricity and Semi Major Axis

Open Calculator

fx $e = \dfrac{c}{a}$

ex $0.8m = \dfrac{8m}{10m}$

6) Eccentricity of Ellipse given Linear Eccentricity and Semi Minor Axis

Open Calculator

fx $e = \dfrac{c}{\sqrt{b^2 + c^2}}$

ex $0.8m = \dfrac{8m}{\sqrt{(6m)^2 + (8m)^2}}$

7) Linear Eccentricity of Ellipse ⎘

Open Calculator ⎘

fx $c = \sqrt{a^2 - b^2}$

ex $8m = \sqrt{(10m)^2 - (6m)^2}$

Latus Rectum of Ellipse ⎘

8) Latus Rectum of Ellipse ⎘

Open Calculator ⎘

fx $2l = 2 \cdot \dfrac{b^2}{a}$

ex $7.2m = 2 \cdot \dfrac{(6m)^2}{10m}$

9) Latus Rectum of Ellipse given Eccentricity and Semi Minor Axis ⎘

Open Calculator ⎘

fx $2l = 2 \cdot b \cdot \sqrt{1 - e^2}$

ex $7.2m = 2 \cdot 6m \cdot \sqrt{1 - (0.8m)^2}$

10) Latus Rectum of Ellipse given Linear Eccentricity and Semi Minor Axis 🔗

Open Calculator 🔗

$$fx \quad 2l = 2 \cdot \frac{b^2}{\sqrt{c^2 + b^2}}$$

$$ex \quad 7.2m = 2 \cdot \frac{(6m)^2}{\sqrt{(8m)^2 + (6m)^2}}$$

11) Latus Rectum of Ellipse given Major and Minor Axes 🔗

Open Calculator 🔗

$$fx \quad 2l = \frac{(2b)^2}{2a}$$

$$ex \quad 7.2m = \frac{(12m)^2}{20m}$$

12) Semi Latus Rectum of Ellipse 🔗

Open Calculator 🔗

$$fx \quad l = \frac{b^2}{a}$$

$$ex \quad 3.6m = \frac{(6m)^2}{10m}$$

Major Axis of Ellipse ⌕

13) Major Axis of Ellipse ⌕

Open Calculator ⌕

fx $\boxed{2a = 2 \cdot a}$

ex $\boxed{20m = 2 \cdot 10m}$

14) Semi Major Axis of Ellipse given Eccentricity and Linear Eccentricity ⌕

Open Calculator ⌕

fx $\boxed{a = \dfrac{c}{e}}$

ex $\boxed{10m = \dfrac{8m}{0.8m}}$

15) Semi Major Axis of Ellipse given Eccentricity and Semi Minor Axis ⌕

Open Calculator ⌕

fx $\boxed{a = \dfrac{b}{\sqrt{1 - e^2}}}$

ex $\boxed{10m = \dfrac{6m}{\sqrt{1 - (0.8m)^2}}}$

16) Semi Major Axis of Ellipse given Linear Eccentricity and Semi Minor Axis ⤴

fx $a = \sqrt{b^2 + c^2}$

Open Calculator ⤴

ex $10m = \sqrt{(6m)^2 + (8m)^2}$

Minor Axis of Ellipse ⤴

17) Minor Axis of Ellipse ⤴

fx $2b = 2 \cdot b$

Open Calculator ⤴

ex $12m = 2 \cdot 6m$

18) Semi Minor Axis of Ellipse given Eccentricity and Linear Eccentricity ⤴

fx $b = \dfrac{c \cdot \sqrt{1 - e^2}}{e}$

Open Calculator ⤴

ex $6m = \dfrac{8m \cdot \sqrt{1 - (0.8m)^2}}{0.8m}$

19) Semi Minor Axis of Ellipse given Eccentricity and Semi Major Axis ⤴

fx $b = a \cdot \sqrt{1 - e^2}$

Open Calculator ⤴

ex $6m = 10m \cdot \sqrt{1 - (0.8m)^2}$

20) Semi Minor Axis of Ellipse given Linear Eccentricity and Semi Major Axis ⚙

Open Calculator ⚙

fx $b = \sqrt{a^2 - c^2}$

ex $6m = \sqrt{(10m)^2 - (8m)^2}$

Other Formulas of Ellipse ⚙

21) Flattening of Ellipse ⚙

Open Calculator ⚙

fx $f = \dfrac{2a - 2b}{2b}$

ex $0.666667m = \dfrac{20m - 12m}{12m}$

22) Focal Parameter of Ellipse ⚙

Open Calculator ⚙

fx $p = \dfrac{b^2}{c}$

ex $4.5m = \dfrac{(6m)^2}{8m}$

Radius of Ellipse 🔗

23) Circumradius of Ellipse 🔗

fx $r_c = \dfrac{2a}{2}$

ex $10m = \dfrac{20m}{2}$

24) Inradius of Ellipse 🔗

fx $r_i = \dfrac{2b}{2}$

ex $6m = \dfrac{12m}{2}$

Variables Used

- **2a** Major Axis of Ellipse *(Meter)*
- **2b** Minor Axis of Ellipse *(Meter)*
- **2l** Latus Rectum of Ellipse *(Meter)*
- **a** Semi Major Axis of Ellipse *(Meter)*
- **A** Area of Ellipse *(Square Meter)*
- **b** Semi Minor Axis of Ellipse *(Meter)*
- **c** Linear Eccentricity of Ellipse *(Meter)*
- **e** Eccentricity of Ellipse *(Meter)*
- **f** Flattening of Ellipse *(Meter)*
- **l** Semi Latus Rectum of Ellipse *(Meter)*
- **p** Focal Parameter of Ellipse *(Meter)*
- **r_c** Circumradius of Ellipse *(Meter)*
- **r_i** Inradius of Ellipse *(Meter)*

Constants, Functions, Measurements used

- Constant: **pi**, 3.14159265358979323846264338327950288
  Archimedes' constant
- Function: **sqrt**, sqrt(Number)
  Square root function
- Measurement: **Length** in Meter (m)
  Length Unit Conversion 🔗
- Measurement: **Area** in Square Meter (m²)
  Area Unit Conversion 🔗

Check other formula lists

- **Ellipse Formulas** ↗
- **Elliptical Ring Formulas** ↗
- **Elliptical Sector Formulas** ↗
- **Elliptical Segment Formulas** ↗
- **Semi Ellipse Formulas** ↗

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