Important Heart Shape Formulas PDF

Formulas
Examples
with Units

List of 20
Important Heart Shape Formulas

1) Area of Heart Shape Formulas

1.1) Area of Heart Shape Formula

Evaluate Formula

Formula

$$A = \left(1 + \frac{\pi}{4}\right) \cdot l_{e(Square)}^{2}$$

Example with Units

$$178.5398\,\text{m}^2 = \left(1 + \frac{3.1416}{4}\right) \cdot 10\,\text{m}^{2}$$

1.2) Area of Heart Shape given Height Formula

Evaluate Formula

Formula

$$A = \left(1 + \frac{\pi}{4}\right) \cdot \left(\frac{h}{\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}}\right)^{2}$$

Example with Units

$$164.9305\,\text{m}^2 = \left(1 + \frac{3.1416}{4}\right) \cdot \left(\frac{15\,\text{m}}{\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}}\right)^{2}$$

1.3) Area of Heart Shape given Perimeter Formula

Evaluate Formula

Formula

$$A = \left(1 + \frac{\pi}{4}\right) \cdot \left(\frac{P}{2 + \pi}\right)^{2}$$

Example with Units

$$168.8417\,\text{m}^2 = \left(1 + \frac{3.1416}{4}\right) \cdot \left(\frac{50\,\text{m}}{2 + 3.1416}\right)^{2}$$

1.4) Area of Heart Shape given Width Formula

Evaluate Formula

Formula

$$A = \left(1 + \frac{\pi}{4}\right) \cdot \left(\frac{w}{\frac{1}{\sqrt{2}} + 1}\right)^{2}$$

Example with Units

$$177.0564\,\text{m}^2 = \left(1 + \frac{3.1416}{4}\right) \cdot \left(\frac{17\,\text{m}}{\frac{1}{\sqrt{2}} + 1}\right)^{2}$$

2) Edge Length of Square of Heart Shape Formulas

2.1) Edge Length of Square of Heart Shape given Area Formula

Evaluate Formula

Formula

$$l_{e(Square)} = \sqrt{\frac{A}{1 + \frac{\pi}{4}}}$$

Example with Units

$$10.0408\,\text{m} = \sqrt{\frac{180\,\text{m}^2}{1 + \frac{3.1416}{4}}}$$

2.2) Edge Length of Square of Heart Shape given Height Formula

Evaluate Formula

Formula

$$l_{e(Square)} = \frac{h}{\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}}$$

Example with Units

$$9.6113\,\text{m} = \frac{15\,\text{m}}{\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}}$$

2.3) Edge Length of Square of Heart Shape given Perimeter Formula

Evaluate Formula

Formula

$$l_{e(Square)} = \frac{P}{2 + \pi}$$

Example with Units

$$9.7246\,\text{m} = \frac{50\,\text{m}}{2 + 3.1416}$$

2.4) Edge Length of Square of Heart Shape given Width Formula

Evaluate Formula

Formula

$$l_{e(Square)} = \frac{w}{\frac{1}{\sqrt{2}} + 1}$$

Example with Units

$$9.9584\,\text{m} = \frac{17\,\text{m}}{\frac{1}{\sqrt{2}} + 1}$$

3) Height of Heart Shape Formulas

3.1) Height of Heart Shape Formula

Evaluate Formula

Formula

$$h = \left(\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}\right) \cdot l_{e(Square)}$$

Example with Units

$$15.6066\,\text{m} = \left(\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}\right) \cdot 10\,\text{m}$$

3.2) Height of Heart Shape given Area Formula

Evaluate Formula

Formula

$$h = \left(\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}\right) \cdot \sqrt{\frac{A}{1 + \frac{\pi}{4}}}$$

Example with Units

$$15.6703\,\text{m} = \left(\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}\right) \cdot \sqrt{\frac{180\,\text{m}^2}{1 + \frac{3.1416}{4}}}$$

3.3) Height of Heart Shape given Perimeter Formula

Evaluate Formula

Formula

$$h = \left(\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}\right) \cdot \frac{P}{2 + \pi}$$

Example with Units

$$15.1768\,\text{m} = \left(\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}\right) \cdot \frac{50\,\text{m}}{2 + 3.1416}$$

3.4) Height of Heart Shape given Width Formula

Evaluate Formula

Formula

$$h = \left(\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}\right) \cdot \frac{w}{\frac{1}{\sqrt{2}} + 1}$$

Example with Units

$$15.5416\,\text{m} = \left(\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}\right) \cdot \frac{17\,\text{m}}{\frac{1}{\sqrt{2}} + 1}$$

4) Perimeter of Heart Shape Formulas

4.1) Perimeter of Heart Shape Formula

Evaluate Formula

Formula

$$P = (2 + \pi) \cdot l_{e(Square)}$$

Example with Units

$$51.4159\,\text{m} = (2 + 3.1416) \cdot 10\,\text{m}$$

4.2) Perimeter of Heart Shape given Area Formula

Evaluate Formula

Formula

$$P = (2 + \pi) \cdot \sqrt{\frac{A}{1 + \frac{\pi}{4}}}$$

Example with Units

$$51.6258\,\text{m} = (2 + 3.1416) \cdot \sqrt{\frac{180\,\text{m}^2}{1 + \frac{3.1416}{4}}}$$

4.3) Perimeter of Heart Shape given Height Formula

Evaluate Formula

Formula

$$P = (2 + \pi) \cdot \frac{h}{\frac{3}{4} \cdot \sqrt{2} + \frac{1}{2}}$$

Example with Units

$$49.4175\,\text{m} = (2 + 3.1416) \cdot \frac{15\,\text{m}}{\frac{3}{4} \cdot \sqrt{2} + \frac{1}{2}}$$

4.4) Perimeter of Heart Shape given Width Formula

Evaluate Formula

Formula

$$P = (2 + \pi) \cdot \frac{w}{\frac{1}{\sqrt{2}} + 1}$$

Example with Units

$$51.2019\,\text{m} = (2 + 3.1416) \cdot \frac{17\,\text{m}}{\frac{1}{\sqrt{2}} + 1}$$

5) Width of Heart Shape Formulas

5.1) Width of Heart Shape Formula

Evaluate Formula

Formula

$$w = \left(\frac{1}{\sqrt{2}} + 1\right) \cdot l_{e(Square)}$$

Example with Units

$$17.0711\,\text{m} = \left(\frac{1}{\sqrt{2}} + 1\right) \cdot 10\,\text{m}$$

5.2) Width of Heart Shape given Area Formula

Evaluate Formula

Formula

$$w = \left(\frac{1}{\sqrt{2}} + 1\right) \cdot \sqrt{\frac{A}{1 + \frac{\pi}{4}}}$$

Example with Units

$$17.1407\,\text{m} = \left(\frac{1}{\sqrt{2}} + 1\right) \cdot \sqrt{\frac{180\,\text{m}^2}{1 + \frac{3.1416}{4}}}$$

5.3) Width of Heart Shape given Height Formula

Evaluate Formula

Formula

$$w = \left(\frac{1}{\sqrt{2}} + 1\right) \cdot \frac{h}{\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}}$$

Example with Units

$$16.4075\,\text{m} = \left(\frac{1}{\sqrt{2}} + 1\right) \cdot \frac{15\,\text{m}}{\frac{3 \cdot \sqrt{2}}{4} + \frac{1}{2}}$$

5.4) Width of Heart Shape given Perimeter Formula

Evaluate Formula

Formula

$$w = \left(\frac{1}{\sqrt{2}} + 1\right) \cdot \frac{P}{2 + \pi}$$

Example with Units

$$16.601\,\text{m} = \left(\frac{1}{\sqrt{2}} + 1\right) \cdot \frac{50\,\text{m}}{2 + 3.1416}$$

Variables used in list of Heart Shape Formulas above

- **A** Area of Heart Shape *(Square Meter)*
- **h** Height of Heart Shape *(Meter)*
- $l_{e(Square)}$ Edge Length of Square of Heart Shape *(Meter)*
- **P** Perimeter of Heart Shape *(Meter)*
- **w** Width of Heart Shape *(Meter)*

Constants, Functions, Measurements used in list of Heart Shape Formulas above

- constant(s): **pi**, 3.14159265358979323846264338327950288 *Archimedes' constant*
- Functions: **sqrt**, sqrt(Number) *A square root function is a function that takes a non-negative number as an input and returns the square root of the given input number.*
- Measurement: **Length** in Meter (m) *Length Unit Conversion*
- Measurement: **Area** in Square Meter (m²) *Area Unit Conversion*

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