# Important Square Formulas PDF

**Formulas**

**Examples**

**with Units**

**List of 56**
Important Square Formulas

## 1) Area of Square Formulas

### 1.1) Area of Square Formula

Formula

$$A = l_e^2$$

Example with Units

$$100 \, m^2 = 10 \, m^2$$

### 1.2) Area of Square given Circumradius Formula

Formula

$$A = 2 \cdot r_c^2$$

Example with Units

$$98 \, m^2 = 2 \cdot 7 \, m^2$$

### 1.3) Area of Square given Diagonal Formula

Formula

$$A = \frac{1}{2} \cdot d^2$$

Example with Units

$$98 \, m^2 = \frac{1}{2} \cdot 14 \, m^2$$

### 1.4) Area of Square given Diameter of Circumcircle Formula

Formula

$$A = \frac{D_c^2}{2}$$

Example with Units

$$98 \, m^2 = \frac{14 \, m^2}{2}$$

### 1.5) Area of Square given Diameter of Incircle Formula

Formula

$$A = D_i^2$$

Example with Units

$$100 \, m^2 = 10 \, m^2$$

### 1.6) Area of Square given Inradius Formula

Formula

$$A = 4 \cdot r_i^2$$

Example with Units

$$100 \, m^2 = 4 \cdot 5 \, m^2$$

### 1.7) Area of Square given Perimeter Formula 

**Formula**

$$A = \frac{1}{16} \cdot P^2$$

**Example with Units**

$$100\,\text{m}^2 = \frac{1}{16} \cdot 40\,\text{m}^2$$

# 2) Diagonal of Square Formulas 

### 2.1) Diagonal of Square Formula 

**Formula**

$$d = \sqrt{2} \cdot l_e$$

**Example with Units**

$$14.1421\,\text{m} = \sqrt{2} \cdot 10\,\text{m}$$

### 2.2) Diagonal of Square given Area Formula 

**Formula**

$$d = \sqrt{2 \cdot A}$$

**Example with Units**

$$14.1421\,\text{m} = \sqrt{2 \cdot 100\,\text{m}^2}$$

### 2.3) Diagonal of Square given Circumradius Formula 

**Formula**

$$d = 2 \cdot r_c$$

**Example with Units**

$$14\,\text{m} = 2 \cdot 7\,\text{m}$$

### 2.4) Diagonal of Square given Diameter of Circumcircle Formula 

**Formula**

$$d = \frac{D_c}{1}$$

**Example with Units**

$$14\,\text{m} = \frac{14\,\text{m}}{1}$$

### 2.5) Diagonal of Square given Diameter of Incircle Formula 

**Formula**

$$d = \sqrt{2} \cdot D_i$$

**Example with Units**

$$14.1421\,\text{m} = \sqrt{2} \cdot 10\,\text{m}$$

### 2.6) Diagonal of Square given Inradius Formula 

**Formula**

$$d = 2 \cdot \sqrt{2} \cdot r_i$$

**Example with Units**

$$14.1421\,\text{m} = 2 \cdot \sqrt{2} \cdot 5\,\text{m}$$

### 2.7) Diagonal of Square given Perimeter Formula 

**Formula**

$$d = \frac{P}{2 \cdot \sqrt{2}}$$

**Example with Units**

$$14.1421\,\text{m} = \frac{40\,\text{m}}{2 \cdot \sqrt{2}}$$

# 3) Diameter of Square Formulas

## 3.1) Diameter of Circumcircle of Square Formulas 📲

### 3.1.1) Diameter of Circumcircle of Square Formula 📲

Evaluate Formula 📲

**Formula**

$$D_c = \sqrt{2} \cdot l_e$$

**Example with Units**

$$14.1421\,\text{m} = \sqrt{2} \cdot 10\,\text{m}$$

### 3.1.2) Diameter of Circumcircle of Square given Area Formula 📲

Evaluate Formula 📲

**Formula**

$$D_c = \sqrt{2 \cdot A}$$

**Example with Units**

$$14.1421\,\text{m} = \sqrt{2 \cdot 100\,\text{m}^2}$$

### 3.1.3) Diameter of Circumcircle of Square given Circumradius Formula 📲

Evaluate Formula 📲

**Formula**

$$D_c = 2 \cdot r_c$$

**Example with Units**

$$14\,\text{m} = 2 \cdot 7\,\text{m}$$

### 3.1.4) Diameter of Circumcircle of Square given Diagonal Formula 📲

Evaluate Formula 📲

**Formula**

$$D_c = \frac{d}{1}$$

**Example with Units**

$$14\,\text{m} = \frac{14\,\text{m}}{1}$$

### 3.1.5) Diameter of Circumcircle of Square given Diameter of Incircle Formula 📲

Evaluate Formula 📲

**Formula**

$$D_c = \sqrt{2} \cdot D_i$$

**Example with Units**

$$14.1421\,\text{m} = \sqrt{2} \cdot 10\,\text{m}$$

### 3.1.6) Diameter of Circumcircle of Square given Inradius Formula 📲

Evaluate Formula 📲

**Formula**

$$D_c = 2 \cdot \sqrt{2} \cdot r_i$$

**Example with Units**

$$14.1421\,\text{m} = 2 \cdot \sqrt{2} \cdot 5\,\text{m}$$

### 3.1.7) Diameter of Circumcircle of Square given Perimeter Formula 📲

Evaluate Formula 📲

**Formula**

$$D_c = \frac{P}{2 \cdot \sqrt{2}}$$

**Example with Units**

$$14.1421\,\text{m} = \frac{40\,\text{m}}{2 \cdot \sqrt{2}}$$

## 3.2) Diameter of Incircle of Square Formulas 📲

### 3.2.1) Diameter of Incircle of Square Formula 📲

Evaluate Formula 📲

**Formula**

$$D_i = \frac{l_e}{1}$$

**Example with Units**

$$10\,\text{m} = \frac{10\,\text{m}}{1}$$

### 3.2.2) Diameter of Incircle of Square given Area Formula 

**Formula**

$$D_i = \sqrt{A}$$

**Example with Units**

$$10\,\text{m} = \sqrt{100\,\text{m}^2}$$

Evaluate Formula 

---

### 3.2.3) Diameter of Incircle of Square given Circumradius Formula 

**Formula**

$$D_i = \sqrt{2} \cdot r_c$$

**Example with Units**

$$9.8995\,\text{m} = \sqrt{2} \cdot 7\,\text{m}$$

Evaluate Formula 

---

### 3.2.4) Diameter of Incircle of Square given Diagonal Formula 

**Formula**

$$D_i = \frac{d}{\sqrt{2}}$$

**Example with Units**

$$9.8995\,\text{m} = \frac{14\,\text{m}}{\sqrt{2}}$$

Evaluate Formula 

---

### 3.2.5) Diameter of Incircle of Square given Diameter of Circumcircle Formula 

**Formula**

$$D_i = \frac{D_c}{\sqrt{2}}$$

**Example with Units**

$$9.8995\,\text{m} = \frac{14\,\text{m}}{\sqrt{2}}$$

Evaluate Formula 

---

### 3.2.6) Diameter of Incircle of Square given Inradius Formula 

**Formula**

$$D_i = 2 \cdot r_i$$

**Example with Units**

$$10\,\text{m} = 2 \cdot 5\,\text{m}$$

Evaluate Formula 

---

### 3.2.7) Diameter of Incircle of Square given Perimeter Formula 

**Formula**

$$D_i = \frac{P}{4}$$

**Example with Units**

$$10\,\text{m} = \frac{40\,\text{m}}{4}$$

Evaluate Formula 

---

# 4) Edge of Square Formulas 

### 4.1) Edge Length of Square given Area Formula 

**Formula**

$$l_e = \sqrt{A}$$

**Example with Units**

$$10\,\text{m} = \sqrt{100\,\text{m}^2}$$

Evaluate Formula 

---

### 4.2) Edge Length of Square given Circumradius Formula 

**Formula**

$$l_e = \sqrt{2} \cdot r_c$$

**Example with Units**

$$9.8995\,\text{m} = \sqrt{2} \cdot 7\,\text{m}$$

Evaluate Formula 

---

## 4.3) Edge Length of Square given Diagonal Formula 

| Formula | Example with Units |
|---|---|
| $l_e = \dfrac{d}{\sqrt{2}}$ | $9.8995\,\text{m} = \dfrac{14\,\text{m}}{\sqrt{2}}$ |

## 4.4) Edge Length of Square given Diameter of Circumcircle Formula 

| Formula | Example with Units |
|---|---|
| $l_e = \dfrac{D_c}{\sqrt{2}}$ | $9.8995\,\text{m} = \dfrac{14\,\text{m}}{\sqrt{2}}$ |

## 4.5) Edge Length of Square given Diameter of Incircle Formula 

| Formula | Example with Units |
|---|---|
| $l_e = \dfrac{D_i}{1}$ | $10\,\text{m} = \dfrac{10\,\text{m}}{1}$ |

## 4.6) Edge Length of Square given Inradius Formula 

| Formula | Example with Units |
|---|---|
| $l_e = 2 \cdot r_i$ | $10\,\text{m} = 2 \cdot 5\,\text{m}$ |

## 4.7) Edge Length of Square given Perimeter Formula 

| Formula | Example with Units |
|---|---|
| $l_e = \dfrac{P}{4}$ | $10\,\text{m} = \dfrac{40\,\text{m}}{4}$ |

# 5) Perimeter of Square Formulas 

## 5.1) Perimeter of Square Formula 

| Formula | Example with Units |
|---|---|
| $P = 4 \cdot l_e$ | $40\,\text{m} = 4 \cdot 10\,\text{m}$ |

## 5.2) Perimeter of Square given Area Formula 

| Formula | Example with Units |
|---|---|
| $P = 4 \cdot \sqrt{A}$ | $40\,\text{m} = 4 \cdot \sqrt{100\,\text{m}^2}$ |

## 5.3) Perimeter of Square given Circumradius Formula 

| Formula | Example with Units |
|---|---|
| $P = 4 \cdot \sqrt{2} \cdot r_c$ | $39.598\,\text{m} = 4 \cdot \sqrt{2} \cdot 7\,\text{m}$ |

## 5.4) Perimeter of Square given Diagonal Formula ⏩

| Formula | Example with Units |
|---|---|
| $P = 2 \cdot \sqrt{2} \cdot d$ | $39.598\,\text{m} = 2 \cdot \sqrt{2} \cdot 14\,\text{m}$ |

## 5.5) Perimeter of Square given Diameter of Circumcircle Formula ⏩

| Formula | Example with Units |
|---|---|
| $P = 2 \cdot \sqrt{2} \cdot D_c$ | $39.598\,\text{m} = 2 \cdot \sqrt{2} \cdot 14\,\text{m}$ |

## 5.6) Perimeter of Square given Diameter of Incircle Formula ⏩

| Formula | Example with Units |
|---|---|
| $P = 4 \cdot D_i$ | $40\,\text{m} = 4 \cdot 10\,\text{m}$ |

## 5.7) Perimeter of Square given Inradius Formula ⏩

| Formula | Example with Units |
|---|---|
| $P = 8 \cdot r_i$ | $40\,\text{m} = 8 \cdot 5\,\text{m}$ |

# 6) Radius of Square Formulas ⏩

## 6.1) Circumradius of Square Formulas ⏩

### 6.1.1) Circumradius of Square Formula ⏩

| Formula | Example with Units |
|---|---|
| $r_c = \dfrac{l_e}{\sqrt{2}}$ | $7.0711\,\text{m} = \dfrac{10\,\text{m}}{\sqrt{2}}$ |

### 6.1.2) Circumradius of Square given Area Formula ⏩

| Formula | Example with Units |
|---|---|
| $r_c = \sqrt{\dfrac{A}{2}}$ | $7.0711\,\text{m} = \sqrt{\dfrac{100\,\text{m}^2}{2}}$ |

### 6.1.3) Circumradius of Square given Diagonal Formula ⏩

| Formula | Example with Units |
|---|---|
| $r_c = \dfrac{d}{2}$ | $7\,\text{m} = \dfrac{14\,\text{m}}{2}$ |

### 6.1.4) Circumradius of Square given Diameter of Circumcircle Formula ⏩

| Formula | Example with Units |
|---|---|
| $r_c = \dfrac{D_c}{2}$ | $7\,\text{m} = \dfrac{14\,\text{m}}{2}$ |

### 6.1.5) Circumradius of Square given Diameter of Incircle Formula 

**Formula**

$$r_c = \frac{D_i}{\sqrt{2}}$$

**Example with Units**

$$7.0711 \, m = \frac{10 \, m}{\sqrt{2}}$$

Evaluate Formula 

### 6.1.6) Circumradius of Square given Inradius Formula 

**Formula**

$$r_c = \sqrt{2} \cdot r_i$$

**Example with Units**

$$7.0711 \, m = \sqrt{2} \cdot 5 \, m$$

Evaluate Formula 

### 6.1.7) Circumradius of Square given Perimeter Formula 

**Formula**

$$r_c = \frac{P}{4 \cdot \sqrt{2}}$$

**Example with Units**

$$7.0711 \, m = \frac{40 \, m}{4 \cdot \sqrt{2}}$$

Evaluate Formula 

## 6.2) Inradius of Square Formulas 

### 6.2.1) Inradius of Square Formula 

**Formula**

$$r_i = \frac{l_e}{2}$$

**Example with Units**

$$5 \, m = \frac{10 \, m}{2}$$

Evaluate Formula 

### 6.2.2) Inradius of Square given Area Formula 

**Formula**

$$r_i = \frac{\sqrt{A}}{2}$$

**Example with Units**

$$5 \, m = \frac{\sqrt{100 \, m^2}}{2}$$

Evaluate Formula 

### 6.2.3) Inradius of Square given Circumradius Formula 

**Formula**

$$r_i = \frac{r_c}{\sqrt{2}}$$

**Example with Units**

$$4.9497 \, m = \frac{7 \, m}{\sqrt{2}}$$

Evaluate Formula 

### 6.2.4) Inradius of Square given Diagonal Formula 

**Formula**

$$r_i = \frac{d}{2 \cdot \sqrt{2}}$$

**Example with Units**

$$4.9497 \, m = \frac{14 \, m}{2 \cdot \sqrt{2}}$$

Evaluate Formula

## 6.2.5) Inradius of Square given Diameter of Circumcircle Formula 📲

**Formula**

$$r_i = \frac{D_c}{2 \cdot \sqrt{2}}$$

**Example with Units**

$$4.9497\,\text{m} = \frac{14\,\text{m}}{2 \cdot \sqrt{2}}$$

## 6.2.6) Inradius of Square given Diameter of Incircle Formula 📲

**Formula**

$$r_i = \frac{D_i}{2}$$

**Example with Units**

$$5\,\text{m} = \frac{10\,\text{m}}{2}$$

## 6.2.7) Inradius of Square given Perimeter Formula 📲

**Formula**

$$r_i = \frac{P}{8}$$

**Example with Units**

$$5\,\text{m} = \frac{40\,\text{m}}{8}$$

## Variables used in list of Square Formulas above

- **A** Area of Square *(Square Meter)*
- **d** Diagonal of Square *(Meter)*
- **D$_c$** Diameter of Circumcircle of Square *(Meter)*
- **D$_i$** Diameter of Incircle of Square *(Meter)*
- **l$_e$** Edge Length of Square *(Meter)*
- **P** Perimeter of Square *(Meter)*
- **r$_c$** Circumradius of Square *(Meter)*
- **r$_i$** Inradius of Square *(Meter)*

## Constants, Functions, Measurements used in list of Square Formulas above

- 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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