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Important Formulas of Scalene Triangle

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List of 28 Important Formulas of Scalene Triangle

Important Formulas of Scalene Triangle 🖉

Angles of Scalene Triangle 🖉

1) Larger Angle of Scalene Triangle 🖉

fx $$\angle_{\text{Larger}} = a\cos\left(\frac{S_{\text{Medium}}^2 + S_{\text{Shorter}}^2 - S_{\text{Longer}}^2}{2 \cdot S_{\text{Medium}} \cdot S_{\text{Shorter}}}\right)$$

Open Calculator 🖉

ex $$111.8037° = a\cos\left(\frac{(14\text{m})^2 + (10\text{m})^2 - (20\text{m})^2}{2 \cdot 14\text{m} \cdot 10\text{m}}\right)$$

2) Larger Angle of Scalene Triangle given other Angles 🖉

fx $$\angle_{\text{Larger}} = \pi - (\angle_{\text{Medium}} + \angle_{\text{Smaller}})$$

Open Calculator 🖉

ex $$110° = \pi - (40° + 30°)$$

3) Medium Angle of Scalene Triangle 🖉

fx $$\angle_{\text{Medium}} = a\cos\left(\frac{S_{\text{Longer}}^2 + S_{\text{Shorter}}^2 - S_{\text{Medium}}^2}{2 \cdot S_{\text{Longer}} \cdot S_{\text{Shorter}}}\right)$$

Open Calculator 🖉

ex $$40.5358° = a\cos\left(\frac{(20\text{m})^2 + (10\text{m})^2 - (14\text{m})^2}{2 \cdot 20\text{m} \cdot 10\text{m}}\right)$$

4) Medium Angle of Scalene Triangle given Longer Side, Medium Side and Larger Angle 🖉

fx $$\angle_{\text{Medium}} = a\sin\left(\frac{S_{\text{Medium}}}{S_{\text{Longer}}} \cdot \sin(\angle_{\text{Larger}})\right)$$

Open Calculator 🖉

ex $$41.13115° = a\sin\left(\frac{14\text{m}}{20\text{m}} \cdot \sin(110°)\right)$$

5) Smaller Angle of Scalene Triangle ⤢

[fx] $$\angle_{\text{Smaller}} = a\cos\left(\frac{S_{\text{Longer}}^2 + S_{\text{Medium}}^2 - S_{\text{Shorter}}^2}{2 \cdot S_{\text{Longer}} \cdot S_{\text{Medium}}}\right)$$

[ex] $$27.66045° = a\cos\left(\frac{(20\text{m})^2 + (14\text{m})^2 - (10\text{m})^2}{2 \cdot 20\text{m} \cdot 14\text{m}}\right)$$

6) Smaller Angle of Scalene Triangle given Medium Side, Shorter Side and Medium Angle ⤢

[fx] $$\angle_{\text{Smaller}} = a\sin\left(\frac{S_{\text{Shorter}}}{S_{\text{Medium}}} \cdot \sin(\angle_{\text{Medium}})\right)$$

[ex] $$27.33124° = a\sin\left(\frac{10\text{m}}{14\text{m}} \cdot \sin(40°)\right)$$

Area of Scalene Triangle ⤢

7) Area of Scalene Triangle ⤢

[fx]

$$A = \frac{\sqrt{(S_{\text{Longer}} + S_{\text{Medium}} + S_{\text{Shorter}}) \cdot (S_{\text{Medium}} + S_{\text{Shorter}} - S_{\text{Longer}}) \cdot (S_{\text{Longer}} + S_{\text{Shorter}} - S_{\text{M}})}}{4}$$

[ex]

$$64.99231\text{m}^2 = \frac{\sqrt{(20\text{m} + 14\text{m} + 10\text{m}) \cdot (14\text{m} + 10\text{m} - 20\text{m}) \cdot (20\text{m} + 10\text{m} - 14\text{m}) \cdot (20\text{m} + 14\text{m} - 10\text{m})}}{4}$$

8) Area of Scalene Triangle given Larger Angle and Adjacent Sides ⤢

[fx] $$A = \frac{S_{\text{Medium}} \cdot S_{\text{Shorter}} \cdot \sin(\angle_{\text{Larger}})}{2}$$

[ex] $$65.77848\text{m}^2 = \frac{14\text{m} \cdot 10\text{m} \cdot \sin(110°)}{2}$$

9) Area of Scalene Triangle given Medium Angle and Adjacent Sides ⤢

[fx] $$A = \frac{S_{\text{Longer}} \cdot S_{\text{Shorter}} \cdot \sin(\angle_{\text{Medium}})}{2}$$

[ex] $$64.27876\text{m}^2 = \frac{20\text{m} \cdot 10\text{m} \cdot \sin(40°)}{2}$$

10) Area of Scalene Triangle given Smaller Angle and Adjacent Sides 🔗

fx $A = \dfrac{S_{Longer} \cdot S_{Medium} \cdot \sin(\angle_{Smaller})}{2}$

ex $70m^2 = \dfrac{20m \cdot 14m \cdot \sin(30°)}{2}$

Circumcircle of Scalene Triangle 🔗

11) Area of Circumcircle of Scalene Triangle given Shorter Side and Smaller Angle 🔗

fx $A_{Circumcircle} = \dfrac{\pi}{4} \cdot \left(\dfrac{S_{Shorter}}{\sin(\angle_{Smaller})} \right)^2$

ex $314.1593m^2 = \dfrac{\pi}{4} \cdot \left(\dfrac{10m}{\sin(30°)} \right)^2$

12) Circumference of Circumcircle of Scalene Triangle given Medium Side and Medium Angle 🔗

fx $C_{Circumcircle} = \pi \cdot \dfrac{S_{Medium}}{\sin(\angle_{Medium})}$

ex $68.42431m = \pi \cdot \dfrac{14m}{\sin(40°)}$

13) Circumradius of Scalene Triangle 🔗

fx $r_c = \dfrac{S_{Longer} \cdot S_{Medium} \cdot S_{Shorter}}{\sqrt{(S_{Longer} + S_{Medium} + S_{Shorter}) \cdot (S_{Longer} + S_{Medium} - S_{Shorter}) \cdot (S_{Longer} + S_{Shorter} - S_M}}$

ex

$10.77051m = \dfrac{20m \cdot 14m \cdot 10m}{\sqrt{(20m + 14m + 10m) \cdot (20m + 14m - 10m) \cdot (20m + 10m - 14m) \cdot (14m + 10m - 20m)}}$

14) Circumradius of Scalene Triangle given Longer Side and Larger Angle 🔗

fx $r_c = \dfrac{S_{Longer}}{2 \cdot \sin(\angle_{Larger})}$

ex $10.64178m = \dfrac{20m}{2 \cdot \sin(110°)}$

Heights of Scalene Triangle 🔗

15) Height on Longer Side of Scalene Triangle given Medium Side and Smaller Angle 🔗

fx $h_{\text{Longer}} = S_{\text{Medium}} \cdot \sin(\angle_{\text{Smaller}})$

Open Calculator 🔗

ex $7m = 14m \cdot \sin(30°)$

16) Height on Medium Side of Scalene Triangle given Shorter Side and Larger Angle 🔗

fx $h_{\text{Medium}} = S_{\text{Shorter}} \cdot \sin(\angle_{\text{Larger}})$

Open Calculator 🔗

ex $9.396926m = 10m \cdot \sin(110°)$

17) Height on Shorter Side of Scalene Triangle given Longer Side and Medium Angle 🔗

fx $h_{\text{Shorter}} = S_{\text{Longer}} \cdot \sin(\angle_{\text{Medium}})$

Open Calculator 🔗

ex $12.85575m = 20m \cdot \sin(40°)$

Medians of Scalene Triangle 🔗

18) Median on Longer Side of Scalene Triangle given Three Sides 🔗

fx $M_{\text{Longer}} = \dfrac{\sqrt{2 \cdot \left(S_{\text{Medium}}^2 + S_{\text{Shorter}}^2\right) - S_{\text{Longer}}^2}}{2}$

Open Calculator 🔗

ex $6.928203m = \dfrac{\sqrt{2 \cdot \left((14m)^2 + (10m)^2\right) - (20m)^2}}{2}$

19) Median on Medium Side of Scalene Triangle given Three Sides 🔗

fx $M_{\text{Medium}} = \dfrac{\sqrt{2 \cdot \left(S_{\text{Longer}}^2 + S_{\text{Shorter}}^2\right) - S_{\text{Medium}}^2}}{2}$

Open Calculator 🔗

ex $14.17745m = \dfrac{\sqrt{2 \cdot \left((20m)^2 + (10m)^2\right) - (14m)^2}}{2}$

20) Median on Shorter Side of Scalene Triangle given Three Sides 🔗

fx
$$M_{Shorter} = \frac{\sqrt{2 \cdot \left(S_{Longer}^2 + S_{Medium}^2\right) - S_{Shorter}^2}}{2}$$

Open Calculator 🗗

ex
$$16.52271m = \frac{\sqrt{2 \cdot \left((20m)^2 + (14m)^2\right) - (10m)^2}}{2}$$

Other Formulas of Scalene Triangle 🔗

21) Inradius of Scalene Triangle by Heron's Formula 🔗

fx
$$r_i = \sqrt{\frac{(s - S_{Longer}) \cdot (s - S_{Medium}) \cdot (s - S_{Shorter})}{s}}$$

Open Calculator 🗗

ex
$$2.954196m = \sqrt{\frac{(22m - 20m) \cdot (22m - 14m) \cdot (22m - 10m)}{22m}}$$

22) Perimeter of Scalene Triangle 🔗

fx
$$P = S_{Longer} + S_{Medium} + S_{Shorter}$$

Open Calculator 🗗

ex
$$44m = 20m + 14m + 10m$$

Sides of Scalene Triangle 🔗

23) Longer Side of Scalene Triangle given Larger Angle and other Sides 🔗

fx
$$S_{Longer} = \sqrt{S_{Medium}^2 + S_{Shorter}^2 - 2 \cdot S_{Medium} \cdot S_{Shorter} \cdot \cos(\angle_{Larger})}$$

Open Calculator 🗗

ex
$$19.79307m = \sqrt{(14m)^2 + (10m)^2 - 2 \cdot 14m \cdot 10m \cdot \cos(110°)}$$

24) Longer Side of Scalene Triangle given Larger Angle, Medium Angle and Medium Side 🔗

fx
$$S_{Longer} = S_{Medium} \cdot \frac{\sin(\angle_{Larger})}{\sin(\angle_{Medium})}$$

Open Calculator 🗗

ex
$$20.46663m = 14m \cdot \frac{\sin(110°)}{\sin(40°)}$$

25) Medium Side of Scalene Triangle given Medium Angle and other Sides ↗

fx $S_{Medium} = \sqrt{S_{Longer}^2 + S_{Shorter}^2 - 2 \cdot S_{Longer} \cdot S_{Shorter} \cdot \cos(\angle_{Medium})}$

ex $13.91338m = \sqrt{(20m)^2 + (10m)^2 - 2 \cdot 20m \cdot 10m \cdot \cos(40°)}$

26) Medium Side of Scalene Triangle given Medium Angle, Smaller Angle and Shorter Side ↗

fx $S_{Medium} = S_{Shorter} \cdot \dfrac{\sin(\angle_{Medium})}{\sin(\angle_{Smaller})}$

ex $12.85575m = 10m \cdot \dfrac{\sin(40°)}{\sin(30°)}$

27) Shorter Side of Scalene Triangle given Smaller Angle and other Sides ↗

fx $S_{Shorter} = \sqrt{S_{Longer}^2 + S_{Medium}^2 - 2 \cdot S_{Longer} \cdot S_{Medium} \cdot \cos(\angle_{Smaller})}$

ex $10.53688m = \sqrt{(20m)^2 + (14m)^2 - 2 \cdot 20m \cdot 14m \cdot \cos(30°)}$

28) Shorter Side of Scalene Triangle given Smaller Angle, Larger Angle and Longer Side ↗

fx $S_{Shorter} = S_{Longer} \cdot \dfrac{\sin(\angle_{Smaller})}{\sin(\angle_{Larger})}$

ex $10.64178m = 20m \cdot \dfrac{\sin(30°)}{\sin(110°)}$

Variables Used

- $\angle_{Larger}$ Larger Angle of Scalene Triangle *(Degree)*
- $\angle_{Medium}$ Medium Angle of Scalene Triangle *(Degree)*
- $\angle_{Smaller}$ Smaller Angle of Scalene Triangle *(Degree)*
- A Area of Scalene Triangle *(Square Meter)*
- $A_{Circumcircle}$ Area of Circumcircle of Scalene Triangle *(Square Meter)*
- $C_{Circumcircle}$ Circumference of Circumcircle of Scalene Triangle *(Meter)*
- h_{Longer} Height on Longer Side of Scalene Triangle *(Meter)*
- h_{Medium} Height on Medium Side of Scalene Triangle *(Meter)*
- $h_{Shorter}$ Height on Shorter Side of Scalene Triangle *(Meter)*
- M_{Longer} Median on Longer Side of Scalene Triangle *(Meter)*
- M_{Medium} Median on Medium Side of Scalene Triangle *(Meter)*
- $M_{Shorter}$ Median on Shorter Side of Scalene Triangle *(Meter)*
- P Perimeter of Scalene Triangle *(Meter)*
- r_c Circumradius of Scalene Triangle *(Meter)*
- r_i Inradius of Scalene Triangle *(Meter)*
- s Semiperimeter of Scalene Triangle *(Meter)*
- S_{Longer} Longer Side of Scalene Triangle *(Meter)*
- S_{Medium} Medium Side of Scalene Triangle *(Meter)*
- $S_{Shorter}$ Shorter Side of Scalene Triangle *(Meter)*

Constants, Functions, Measurements used

- Constant: **pi**, 3.14159265358979323846264338327950288
  Archimedes' constant
- Function: **acos**, acos(Number)
  Inverse trigonometric cosine function
- Function: **asin**, asin(Number)
  Inverse trigonometric sine function
- Function: **cos**, cos(Angle)
  Trigonometric cosine function
- Function: **sin**, sin(Angle)
  Trigonometric sine function
- Function: **sqrt**, sqrt(Number)
  Square root function
- Measurement: **Length** in Meter (m)
  Length Unit Conversion
- Measurement: **Area** in Square Meter (m²)
  Area Unit Conversion
- Measurement: **Angle** in Degree (°)
  Angle Unit Conversion

Check other formula lists

- **Equilateral Triangle Formulas**
- **Isosceles Right Triangle Formulas**
- **Isosceles Triangle Formulas**
- **Right Angled Triangle Formulas**
- **Scalene Triangle Formulas**
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