Timester Challenge

Trigonometry – Sine Rule

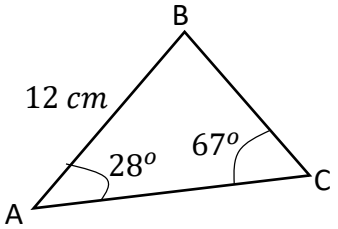
What is the sine rule for finding a missing length?

Bronze

What is the sine rule for finding a missing angle?

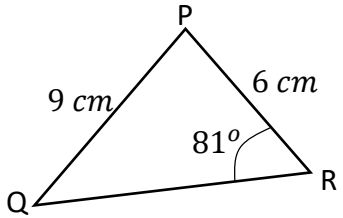
Bronze

Work out the length of BC.



Bronze

Calculate the size of angle PQR.



Bronze

In triangle ABC,

$AB = 7.6\ cm$

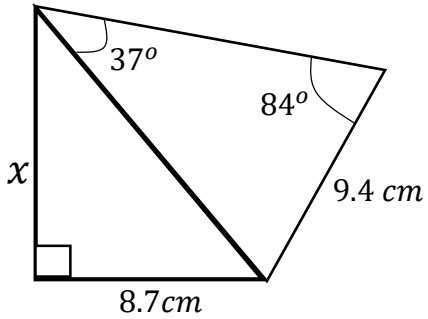
$BC = 4.3\ cm$

Angle $ACB = 74^o$

Calculate the size of the angle BAC.

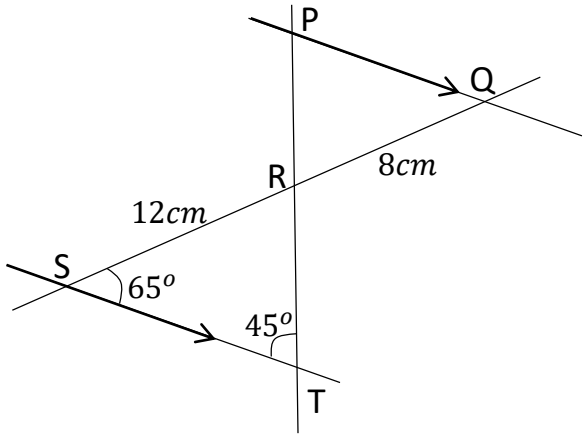
Silver

Calculate x.



Silver

Given that PQ is parallel to ST, calculate the length of PQ.



Gold

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Timester Challenge

Trigonometry – Sine Rule

Answers

What is the sine rule for finding a missing length?

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

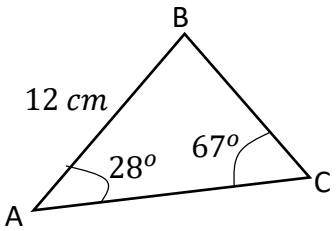
Bronze

What is the sine rule for finding a missing angle?

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

Bronze

Work out the length of BC.



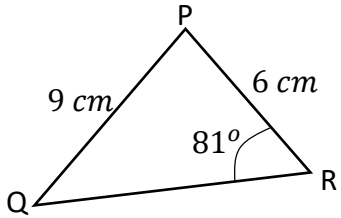
$$\frac{a}{\sin 28} = \frac{12}{\sin 67}$$

$$a = \frac{12}{\sin 67} \times \sin 28$$

$$a = 6.12\ cm$$

Bronze

Calculate the size of angle PQR.



$$\frac{\sin A}{6} = \frac{\sin 81}{9}$$

$$\sin A = \frac{6 \sin 81}{9}$$

$$A = \sin^{-1}(0.6584\ldots)$$

$$A = 41.2^o$$

Bronze

In triangle ABC,

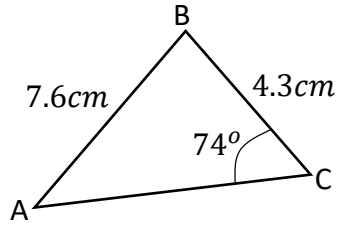
$AB = 7.6\ cm$

$BC = 4.3\ cm$

Angle $ACB = 74^o$

Draw it out

Calculate the size of the angle BAC.



$$\frac{\sin A}{4.3} = \frac{\sin 74}{7.6}$$

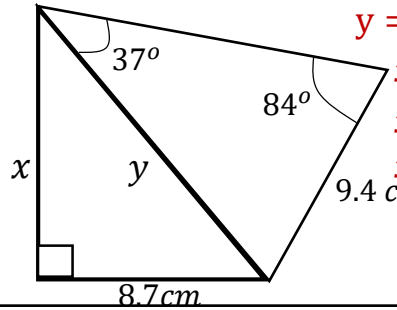
$$\sin A = \frac{4.3 \sin 74}{7.6}$$

$$A = \sin^{-1}(0.54387\ldots)$$

$$A = 32.9^o$$

Silver

Calculate x.



$$y = \frac{9.4}{\sin 37} \times \sin 84$$

$$y = 15.5338\ldots\ cm$$

$$x = \sqrt{(15.5338\ldots)^2 - 8.7^2}$$

$$x = \sqrt{165.6105\ldots}$$

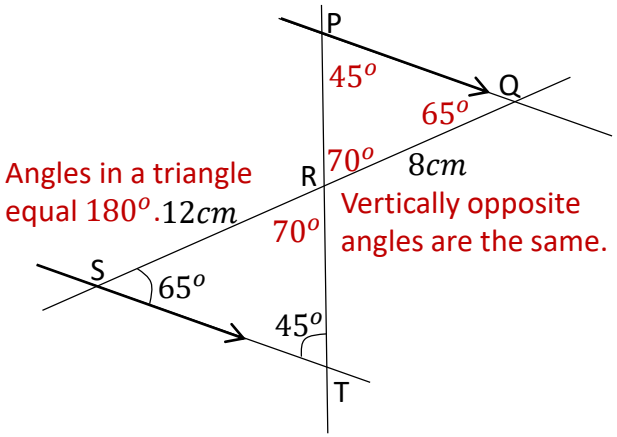
$$x = 12.87cm$$

Silver

Given that PQ is parallel to ST, calculate the length of PQ.

Alternate angles

$QPT = STP$ $SQP = QST$



$$\frac{PQ}{\sin 70} = \frac{8}{\sin 45}$$

$$PQ = \frac{8}{\sin 45} \times \sin 70$$

$$PQ = 10.63\ cm$$

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