Free Geometry/Trigonometry Exercises

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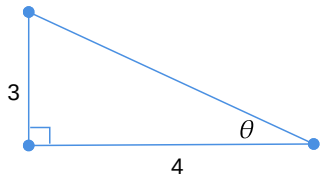
2021

Contents (Geometry)

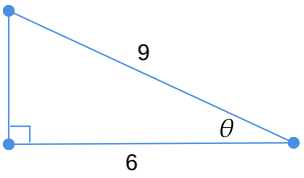
Contents (Trigonometry)

1. SOH CAH TOA

(a) Find $\sin, \cos, \tan, \sec, \csc, \cot$ of θ.



(b) Find $\sin, \cos, \tan, \sec, \csc, \cot$ of θ.



Answers:

(a) $\sin\theta = \frac{3}{5}$, $\cos\theta = \frac{4}{5}$, $\tan\theta = \frac{3}{4}$, $\sec\theta = \frac{5}{4}$, $\csc\theta = \frac{5}{3}$, $\cot\theta = \frac{4}{3}$.

(b) $\sin\theta = \frac{\sqrt{46}}{9}$, $\cos\theta = \frac{2}{3}$, $\tan\theta = \frac{\sqrt{46}}{6}$, $\sec\theta = \frac{3}{2}$, $\csc\theta = \frac{9\sqrt{46}}{46}$, $\cot\theta = \frac{3\sqrt{46}}{2}$.

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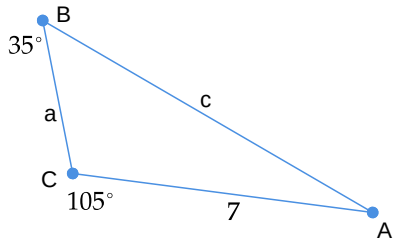
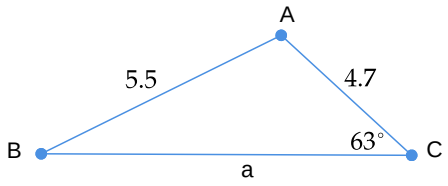
2. Law of Sines

(a) Determine the length of side c.



(b) Determine the measure of angle B.



Answers

(a) 11.8

(b) 49.6°

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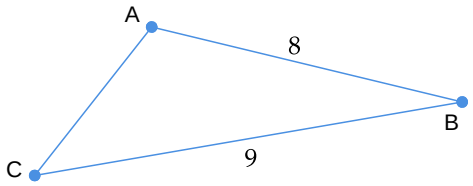
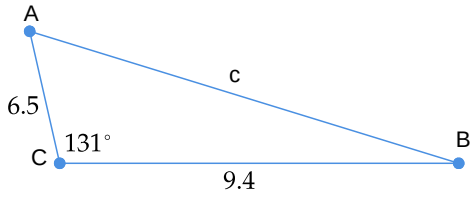
3. Law of Cosines

(a) Determine the measure of angle C.



(b) Determine the length of side c.



Answers

(a) $C = 62.2°$

(b) $c = 14.5$

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1. Trig identity proofs (start with left, show it equals right)

(a) Show $\frac{\cot\theta}{\csc\theta} = \cos\theta$.

(b) Show $\cot\theta + \tan\theta = \sec\theta\csc\theta$..

(c) $(1-\sin\theta)(1+\csc\theta) = cos\theta cot\theta$

Hints:

(a) Write cot as cos over sin and csc as 1 over sin.

(b) Rewrite cot and tan then add using LCD.

(c) FOIL

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