Answers: Trigonometry (radians)

Summary

Answers to the questions on trigonometry, using radians to measure angles.

*These are the answers to* [*Questions: Trigonometry (radians)*](../questions/qs-trigonometry-radians.qmd)*.*

**Please attempt the questions before reading these answers!**

### Q1

You are given the triangle below.



Q1. Triangle

Here,

* $cos\left(a\right)=\frac{4}{5}$
* $sin\left(a\right)=\frac{3}{5}$
* $tan\left(a\right)=\frac{3}{4}$
* $cos\left(b\right)=\frac{3}{5}$
* $sin\left(b\right)=\frac{4}{5}$
* $tan\left(b\right)=\frac{4}{3}$

### Q2

Using the triangle below, solve the following equations.



Q2. Triangle

2.1. $C=12$

2.2. $A=2$

2.3. $A=1.812$ (to three decimal places)

2.4. $A=\sqrt{6}$

2.5. $A=8$

2.6. $B=\frac{8}{\sqrt{3}}$.

### Q3

3.1. $cos\left(π/6\right)=\frac{\sqrt{3}}{2}$

3.2. $tan\left(π/6\right)=\frac{1}{\sqrt{3}}=\frac{\sqrt{3}}{3}$

3.3. $csc\left(π/4\right)=1$

3.4. $cot\left(π/6\right)−sin\left(π/3\right)=\sqrt{3}−\frac{\sqrt{3}}{2}=\frac{\sqrt{3}}{2}$

3.5. $sin\left(π/2\right)+cos\left(π\right)=1+\left(−1\right)=0$

3.6. $tan\left(π/6\right)−cot\left(π/6\right)=\frac{1}{\sqrt{3}}−\sqrt{3}$

3.7. $cos\left(0\right)sin\left(π/2\right)=1⋅1=1$

3.8. $cos\left(π/6\right)sec\left(π/6\right)−sin\left(π/4\right)csc\left(π/4\right)=1−1=0$

3.9. $cot\left(π/2\right)=0$

## Version history and licensing

v1.0: initial version created 08/23 by Dzhemma Ruseva, Ellie Gurini, Ciara Cormican as part of a University of St Andrews STEP project.

* v1.1: edited 05/24 by tdhc, and split into versions for both degrees and radians.

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