Answers: Trigonometry (radians)

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Summary

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

These are the answers to Questions: Trigonometry (radians).

Please attempt the questions before reading these answers!

Q1

You are given the triangle below.

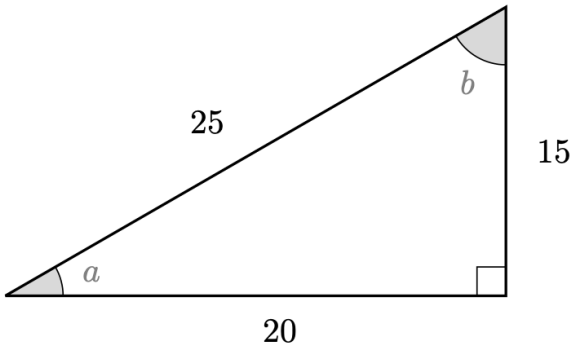

Figure 1: Q1. Triangle

Here,

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

Q2

Using the triangle below, solve the following equations.

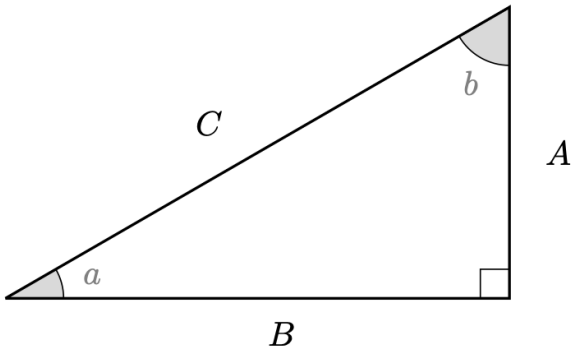

Figure 2: Q2. Triangle

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. $\cos(\pi/6) = \dfrac{\sqrt{3}}{2}$

3.2. $\tan(\pi/6) = \dfrac{1}{\sqrt{3}} = \dfrac{\sqrt{3}}{3}$

3.3. $\csc(\pi/4) = 1$

3.4. $\cot(\pi/6) - \sin(\pi/3) = \sqrt{3} - \dfrac{\sqrt{3}}{2} = \dfrac{\sqrt{3}}{2}$

3.5. $\sin(\pi/2) + \cos(\pi) = 1 + (-1) = 0$

3.6. $\tan(\pi/6) - \cot(\pi/6) = \frac{1}{\sqrt{3}} - \sqrt{3}$

3.7. $\cos(0)\sin(\pi/2) = 1 \cdot 1 = 1$

3.8. $\cos(\pi/6)\sec(\pi/6) - \sin(\pi/4)\csc(\pi/4) = 1 - 1 = 0$

3.9. $\cot(\pi/2) = 0$

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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