Sine/cosine/tangent

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. A right triangle has opposite leg 8 and hypotenuse 17. Find sinθ as a fraction. [2 marks]

Sine is opposite divided by hypotenuse.

Answer: 8/17

2. A right triangle has adjacent leg 12 and hypotenuse 13. Find cosθ. [2 marks]

Cosine is adjacent divided by hypotenuse.

Answer: 12/13

3. A right triangle has opposite leg 9 and adjacent leg 4. Find tanθ. [2 marks]

Tangent is opposite divided by adjacent.

Answer: 9/4 or 2.25

4. Find the opposite leg when the adjacent leg is 14 m and $\theta=28°$. Round to one decimal place. [2 marks]

$\tan 28°=x/14$.

$x=14\tan 28°$.

$x\approx 7.4$ m.

Answer: 7.4 m

5. Find an acute angle with opposite leg 5 cm and hypotenuse 9 cm. Round to one decimal place. [2 marks]

$\sin\theta=5/9$.

$\theta=\sin^{-1}(5/9)$.

$\theta\approx 33.7°$.

Answer: 33.7°

6. A calculation gives $\sin\theta=1.2$ for a right triangle. Can an acute angle satisfy this? Explain. [3 marks]

The opposite side is shorter than the hypotenuse, so $0<\sin\theta<1$.

A value 1.2 indicates an incorrect ratio or inconsistent data.

Answer: No.