Finding an angle

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Find θ if $o = 5$ cm and $h = 13$ cm. Give two decimal places. [2 marks]

$\theta = \sin^{-1}\left(\frac{5}{13}\right)$.

Answer: 22.62°

2. Find θ if $a = 12$ cm and $h = 13$ cm. Give two decimal places. [2 marks]

$\theta = \cos^{-1}\left(\frac{12}{13}\right)$.

This agrees with the matching 5-12-13 triangle.

Answer: 22.62°

3. Find θ if $o = 15$ m and $a = 8$ m. Give two decimal places. [2 marks]

$\theta = \tan^{-1}\left(\frac{15}{8}\right)$.

Opposite exceeds adjacent, so θ exceeds 45°.

Answer: 61.93°

4. An acute angle has sine 0.8. Find it to two decimal places. [2 marks]

$\theta = \sin^{-1}(0.8)$.

Answer: 53.13°

5. For hypotenuse 13 and opposite 5, a student enters $\sin^{-1}\left(\frac{13}{5}\right)$. Explain the error and correct it. [3 marks]

The side ratio was reversed.

$\frac{13}{5}$ exceeds 1 and cannot be a sine value.

Answer: Use $\sin^{-1}\left(\frac{5}{13}\right)$

6. One acute angle in a right triangle is 34.7°. Find the other. [2 marks]

$90^\circ - 34.7^\circ = 55.3^\circ$.

Answer: 55.3°