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]

$\theta = \sin^{-1}(5/13)$.

Answer: 22.62°

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

$\theta = \cos^{-1}(12/13)$.

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]

$\theta = \tan^{-1}(15/8)$.

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 $\sin^{-1}(13/5)$. Explain the error and correct it. [3 marks]

The side ratio was reversed.

13/5 exceeds 1 and cannot be a sine value.

Answer: Use $\sin^{-1}(5/13)$

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°