Similarity and fixed trigonometric ratios

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Compare opposite/adjacent for side pairs (3,4) and (9,12). [2 marks]

$9/12 = 3/4$.

Matching angles agree.

Answer: Both are 3/4 = 0.75

2. Show that opposite/hypotenuse ratios 5/13 and 15/39 agree. [2 marks]

$15/39 = (15 \div 3)/(39 \div 3) = 5/13$.

Answer: Both are 5/13

3. Adjacent/hypotenuse = 4/5. Find adjacent when hypotenuse = 30 cm. [2 marks]

$a = 30(4/5) = 24$ cm.

Answer: 24 cm

4. Opposite/adjacent = 3/4. Find opposite when adjacent = 20 m. [2 marks]

$o/20 = 3/4$.

$o = 15$ m.

Answer: 15 m

5. Corresponding legs are 3,4 in one triangle and 6,4 in another. Are they similar? [3 marks]

The scale factors are $6/3 = 2$ and $4/4 = 1$.

There is no single uniform scale factor.

Answer: No

6. Three opposite/adjacent pairs are (6,8), (12,16) and (18,24). State the common ratio and explain. [3 marks]

All pairs are uniform enlargements of (3,4).

Each opposite/adjacent ratio is 3/4.

Answer: 0.75