Sine rule

6 questions | 17 marks

Equivalent correct methods earn the corresponding marks.

1. A=50°, B=70° and a=9 cm. Find b to one decimal place. [2 marks]

b=9sin70°/sin50°.

b≈11.0 cm.

Answer: 11.0 cm

2. A=70°, a=20 cm and b=15 cm. Find B to one decimal place and explain whether its supplement fits. [3 marks]

sinB=15sin70°/20.

The supplementary candidate plus A=70° exceeds 180°.

Answer: 44.8°; the supplementary angle does not fit.

3. A=45°, B=60° and a=10 m. Find C and c. [3 marks]

C=180°−45°−60°=75°.

c=10sin75°/sin45°.

Answer: C=75°; c≈13.7 m

4. A=30°, a=10 cm and b=14 cm. Find both B angles to one decimal place. [3 marks]

sinB=14sin30°/10=0.7.

Both inverse-sine and supplementary candidates leave a positive third angle.

Answer: 44.4° or 135.6°

5. A=50°, a=8 cm and b=13 cm. Does a triangle exist? Explain. [3 marks]

sinB=13sin50°/8≈1.245>1.

No angle can have this sine.

Answer: No triangle exists.

6. A=35°, B=85° and c=18 m. Find a to one decimal place. [3 marks]

C=60°.

a=18sin35°/sin60°.

Answer: 11.9 m