Triangle sides, medians and altitudes

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Name: _____ Class: _____ Date: _____

Worked example 1

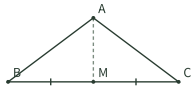
Which three lengths can form a nondegenerate triangle? Show the shortest-two-sides test.

A. 4,6,9
B. 2,3,5
C. 1,4,6
D. 0,4,4

Guided attempt 2

M is the midpoint of BC and BC=12 cm. Explain why AM is a median and find BM.

1. BM=MC because ___.
2. AM joins ___ to ___; BM=___ cm.



Geometry diagram; not drawn to scale except for construction tasks.

Prerequisite 3

Which requirement is missing from lengths 0,5,5?

A. Two sides must be equal.
B. The sides must be integers.
C. Every side must have positive length.
D. The perimeter must exceed 20.

Prerequisite 4

A triangle has sides 5,5,8 cm. Find its perimeter.

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Independent practice 5

Can lengths 3,7,10 form a triangle?

A. No: 3+7=10, and the inequality must be strict.

B. Yes: the two sides add to the third.

C. Yes: all lengths are positive.

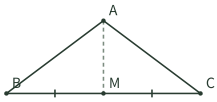
D. Only if it is a right triangle.

Independent practice 6

An isosceles triangle has equal sides 6 cm and base 9 cm. Find its perimeter and check feasibility.

Independent practice 7

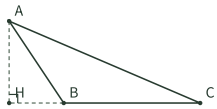
AM is a median of △ABC and BC=15 cm. Find BM.



Geometry diagram; not drawn to scale except for construction tasks.

Independent practice 8

H lies on the line BC extended and AH⊥BC. Is AH an altitude of △ABC even though H is outside segment BC? Explain.



Geometry diagram; not drawn to scale except for construction tasks.

Exit question 9

Can 4,4,8 cm form a triangle? Give one decisive calculation.

A. No, because 4+4=8.

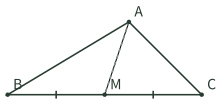
B. Yes, because two sides are equal.

C. Yes, because its perimeter is 16.

D. Only if the longest side is the base.

Exit question 10

A median AM is drawn with M the midpoint of BC. Does “median” alone mean AM⊥BC? Explain.



Geometry diagram; not drawn to scale except for construction tasks.