

The Secret of Angle-Side Theorem (Big Idea Geometry 5.4)

Lesson 071 | Geometry | Angle-side relationships

<https://www.youtube.com/watch?v=uYfuWbx8QJk>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01 Triangle side lengths are 23, 24, 25. Rank their opposite angles. Explain why these lengths form a triangle.

02 Triangle side lengths are 12, 13, 14. Rank their opposite angles. Explain why these lengths form a triangle.

03 Triangle side lengths are 13, 14, 15. Rank their opposite angles. Explain why these lengths form a triangle.

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04

Triangle side lengths are 14, 15, 16. Rank their opposite angles. Explain why these lengths form a triangle.

05

Triangle side lengths are 17, 18, 19. Rank their opposite angles. Explain why these lengths form a triangle.

06

Triangle side lengths are 16, 17, 18. Rank their opposite angles. Explain why these lengths form a triangle.

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01 Triangle side lengths are 23, 24, 25. Rank their opposite angles. Explain why these lengths form a triangle.

$23 < 24 < 25$, so their opposite angles increase in the same order. The two shorter sides sum to $47 > 25$; the triangle inequality holds.

02 Triangle side lengths are 12, 13, 14. Rank their opposite angles. Explain why these lengths form a triangle.

$12 < 13 < 14$, so their opposite angles increase in the same order. The two shorter sides sum to $25 > 14$; the triangle inequality holds.

03 Triangle side lengths are 13, 14, 15. Rank their opposite angles. Explain why these lengths form a triangle.

$13 < 14 < 15$, so their opposite angles increase in the same order. The two shorter sides sum to $27 > 15$; the triangle inequality holds.

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04 Triangle side lengths are 14, 15, 16. Rank their opposite angles. Explain why these lengths form a triangle.

$14 < 15 < 16$, so their opposite angles increase in the same order. The two shorter sides sum to $29 > 16$; the triangle inequality holds.

05 Triangle side lengths are 17, 18, 19. Rank their opposite angles. Explain why these lengths form a triangle.

$17 < 18 < 19$, so their opposite angles increase in the same order. The two shorter sides sum to $35 > 19$; the triangle inequality holds.

06 Triangle side lengths are 16, 17, 18. Rank their opposite angles. Explain why these lengths form a triangle.

$16 < 17 < 18$, so their opposite angles increase in the same order. The two shorter sides sum to $33 > 18$; the triangle inequality holds.