

Big Idea Geometry 2 5 Proving Angles and Segments

Lesson 039 | Geometry | Angle and segment relationships

<https://www.youtube.com/watch?v=4yjNLz5cjSY>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Vertical angles measure $(11x+8)^\circ$ and 63° . Find x and the adjacent angle.

02

Vertical angles measure $(5x+4)^\circ$ and 24° . Find x and the adjacent angle.

03

Two adjacent angles form a straight angle. Their measures are $(5x+6)^\circ$ and $(180-6-20+5(4-x))^\circ$. Find their sum and decide whether x is uniquely determined.

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04

Vertical angles measure $(10x+7)^\circ$ and 57° . Find x and the adjacent angle.

05

Vertical angles measure $(10x+8)^\circ$ and 58° . Find x and the adjacent angle.

06

Two adjacent angles form a straight angle. Their measures are $(3x+8)^\circ$ and $(180-8-15+3(5-x))^\circ$. Find their sum and decide whether x is uniquely determined.

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01

Vertical angles measure $(11x+8)^\circ$ and 63° . Find x and the adjacent angle.

Vertical angles are equal; $11x+8=63$ gives $x=5$. The vertical pair measures 63° . Each adjacent angle is 117° by the linear-pair theorem.

02

Vertical angles measure $(5x+4)^\circ$ and 24° . Find x and the adjacent angle.

Vertical angles are equal; $5x+4=24$ gives $x=4$. The vertical pair measures 24° . Each adjacent angle is 156° by the linear-pair theorem.

03

Two adjacent angles form a straight angle. Their measures are $(5x+6)^\circ$ and $(180-6-20+5(4-x))^\circ$. Find their sum and decide whether x is uniquely determined.

Expand the second angle: $180-6-5x$. The sum is 180° for every x . There is no unique x ; for two positive angles require $0 < 5x+6 < 180$, or $-6/5 < x < (180-6)/5$.

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04

Vertical angles measure $(10x+7)^\circ$ and 57° . Find x and the adjacent angle.

Vertical angles are equal; $10x+7=57$ gives $x=5$. The vertical pair measures 57° . Each adjacent angle is 123° by the linear-pair theorem.

05

Vertical angles measure $(10x+8)^\circ$ and 58° . Find x and the adjacent angle.

Vertical angles are equal; $10x+8=58$ gives $x=5$. The vertical pair measures 58° . Each adjacent angle is 122° by the linear-pair theorem.

06

Two adjacent angles form a straight angle. Their measures are $(3x+8)^\circ$ and $(180-8-15+3(5-x))^\circ$. Find their sum and decide whether x is uniquely determined.

Expand the second angle: $180-8-3x$. The sum is 180° for every x . There is no unique x ; for two positive angles require $0 < 3x+8 < 180$, or $-8/3 < x < (180-8)/3$.