

Geometry Honors 1 3 Part 1 Collinearity and Angles Relationship

Lesson 028 | Geometry | Angle relationships

<https://www.youtube.com/watch?v=70x5nYVMYkE>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Vertical angles measure $(13x+2)^\circ$ and 28° . Find x and the adjacent angle.

02

Vertical angles measure $(5x+8)^\circ$ and 43° . Find x and the adjacent angle.

03

Two adjacent angles form a straight angle. Their measures are $(13x+9)^\circ$ and $(180-9-26+13(2-x))^\circ$. Find their sum and decide whether x is uniquely determined.

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04

Vertical angles measure $(13x+5)^\circ$ and 70° . Find x and the adjacent angle.

05

Vertical angles measure $(13x+3)^\circ$ and 55° . Find x and the adjacent angle.

06

Two adjacent angles form a straight angle. Their measures are $(2x+9)^\circ$ and $(180-9-10+2(5-x))^\circ$. Find their sum and decide whether x is uniquely determined.

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01

Vertical angles measure $(13x+2)^\circ$ and 28° . Find x and the adjacent angle.

Vertical angles are equal; $13x+2=28$ gives $x=2$. The vertical pair measures 28° . Each adjacent angle is 152° by the linear-pair theorem.

02

Vertical angles measure $(5x+8)^\circ$ and 43° . Find x and the adjacent angle.

Vertical angles are equal; $5x+8=43$ gives $x=7$. The vertical pair measures 43° . Each adjacent angle is 137° by the linear-pair theorem.

03

Two adjacent angles form a straight angle. Their measures are $(13x+9)^\circ$ and $(180-9-26+13(2-x))^\circ$. Find their sum and decide whether x is uniquely determined.

Expand the second angle: $180-9-13x$. The sum is 180° for every x . There is no unique x ; for two positive angles require $0 < 13x+9 < 180$, or $-9/13 < x < (180-9)/13$.

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04

Vertical angles measure $(13x+5)^\circ$ and 70° . Find x and the adjacent angle.

Vertical angles are equal; $13x+5=70$ gives $x=5$. The vertical pair measures 70° . Each adjacent angle is 110° by the linear-pair theorem.

05

Vertical angles measure $(13x+3)^\circ$ and 55° . Find x and the adjacent angle.

Vertical angles are equal; $13x+3=55$ gives $x=4$. The vertical pair measures 55° . Each adjacent angle is 125° by the linear-pair theorem.

06

Two adjacent angles form a straight angle. Their measures are $(2x+9)^\circ$ and $(180-9-10+2(5-x))^\circ$. Find their sum and decide whether x is uniquely determined.

Expand the second angle: $180-9-2x$. The sum is 180° for every x . There is no unique x ; for two positive angles require $0 < 2x+9 < 180$, or $-9/2 < x < (180-9)/2$.