

The Secret of Solving the Variables with Segments and Angles (Geometry Honors 1.2)

Lesson 027 | Geometry | Segment and angle equations

<https://www.youtube.com/watch?v=3kvAP6liRAs>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Vertical angles measure $(12x+9)^\circ$ and 57° . Find x and the adjacent angle.

02

Vertical angles measure $(6x+9)^\circ$ and 33° . Find x and the adjacent angle.

03

Two adjacent angles form a straight angle. Their measures are $(5x+9)^\circ$ and $(180-9-25+5(5-x))^\circ$. Find their sum and decide whether x is uniquely determined.

The Secret of Solving the Variables with Segments and Angles (Geometry Honors 1.2)

Lesson 027 | Geometry | Segment and angle equations

<https://www.youtube.com/watch?v=3kvAP6liRAs>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

04

Vertical angles measure $(4x+11)^\circ$ and 27° . Find x and the adjacent angle.

05

Vertical angles measure $(2x+4)^\circ$ and 12° . Find x and the adjacent angle.

06

Two adjacent angles form a straight angle. Their measures are $(3x+7)^\circ$ and $(180-7-9+3(3-x))^\circ$. Find their sum and decide whether x is uniquely determined.

The Secret of Solving the Variables with Segments and Angles (Geometry Honors 1.2)

Lesson 027 | Geometry | Segment and angle equations

<https://www.youtube.com/watch?v=3kvAP6liRAs>

Original practice aligned to the saved video title.

01

Vertical angles measure $(12x+9)^\circ$ and 57° . Find x and the adjacent angle.

Vertical angles are equal; $12x+9=57$ gives $x=4$. The vertical pair measures 57° . Each adjacent angle is 123° by the linear-pair theorem.

02

Vertical angles measure $(6x+9)^\circ$ and 33° . Find x and the adjacent angle.

Vertical angles are equal; $6x+9=33$ gives $x=4$. The vertical pair measures 33° . Each adjacent angle is 147° by the linear-pair theorem.

03

Two adjacent angles form a straight angle. Their measures are $(5x+9)^\circ$ and $(180-9-25+5(5-x))^\circ$. Find their sum and decide whether x is uniquely determined.

Expand the second angle: $180-9-5x$. The sum is 180° for every x . There is no unique x ; for two positive angles require $0 < 5x+9 < 180$, or $-9/5 < x < (180-9)/5$.

The Secret of Solving the Variables with Segments and Angles (Geometry Honors 1.2)

Lesson 027 | Geometry | Segment and angle equations

<https://www.youtube.com/watch?v=3kvAP6liRAs>

Original practice aligned to the saved video title.

04

Vertical angles measure $(4x+11)^\circ$ and 27° . Find x and the adjacent angle.

Vertical angles are equal; $4x+11=27$ gives $x=4$. The vertical pair measures 27° . Each adjacent angle is 153° by the linear-pair theorem.

05

Vertical angles measure $(2x+4)^\circ$ and 12° . Find x and the adjacent angle.

Vertical angles are equal; $2x+4=12$ gives $x=4$. The vertical pair measures 12° . Each adjacent angle is 168° by the linear-pair theorem.

06

Two adjacent angles form a straight angle. Their measures are $(3x+7)^\circ$ and $(180-7-9+3(3-x))^\circ$. Find their sum and decide whether x is uniquely determined.

Expand the second angle: $180-7-3x$. The sum is 180° for every x . There is no unique x ; for two positive angles require $0 < 3x+7 < 180$, or $-7/3 < x < (180-7)/3$.