English Spanish

Topic 1 Angles

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Lesson Tutorials
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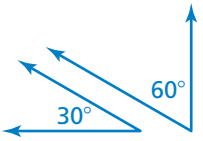
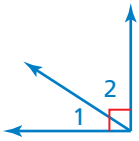
Key Ideas

Complementary Angles

Words Two angles are **complementary angles** if the sum of their measures is 90°.

Examples



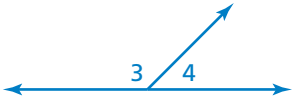


∠1 and ∠2 are complementary angles.

Supplementary Angles

Words Two angles are **supplementary angles** if the sum of their measures is 180°.

Examples

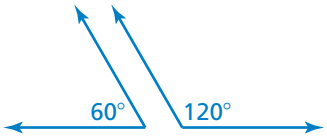


∠3 and ∠4 are supplementary angles.

EXAMPLE 1 Classifying Pairs of Angles

Tell whether the angles are *complementary*, *supplementary*, or *neither*.

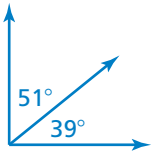
a.



$60° + 120° = 180°$

So, the angles are supplementary.

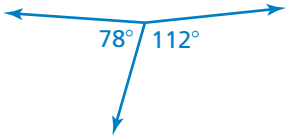
b.



$39° + 51° = 90°$

So, the angles are complementary.

c.



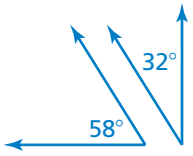
$112° + 78° = 190°$

So, the angles are *neither* complementary nor supplementary.

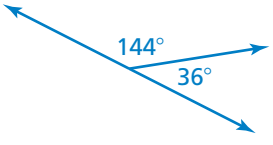
Practice

Tell whether the angles are *complementary*, *supplementary*, or *neither*.

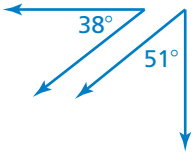
1.



2.



3.



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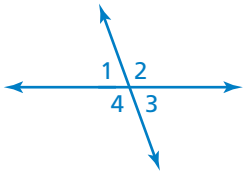
English Spanish

Key Ideas

Adjacent Angles

Words Two angles are **adjacent angles** if they share a common side and have the same vertex.

Examples



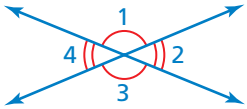
$\angle 1$ and $\angle 2$ are adjacent.

$\angle 2$ and $\angle 4$ are not adjacent.

Vertical Angles

Words Two angles are **vertical angles** if they are opposite angles formed by the intersection of two lines. Vertical angles have the same measure.

Examples



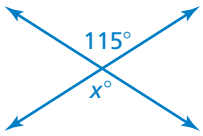
$\angle 1$ and $\angle 3$ are vertical angles.

$\angle 2$ and $\angle 4$ are vertical angles.

EXAMPLE 2 Finding Angle Measures

Tell whether the angles are *adjacent* or *vertical*. Then find the value of x.

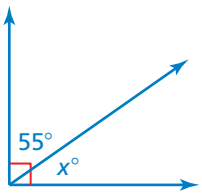
a.



The angles are vertical angles.
Vertical angles have the same measure.

∴ So, x is 115.

b.



The angles are adjacent angles. Because the angles are complementary, the sum of their measures is 90°.

$$x + 55 = 90$$

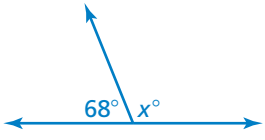
$$x = 35$$

∴ So, x is 35.

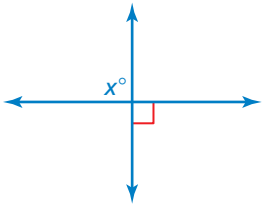
Practice

Tell whether the angles are *adjacent* or *vertical*. Then find the value of x.

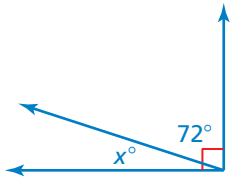
4.



5.



6.



7. LANDSCAPING The tree is tilted 14°. Find the value of x.